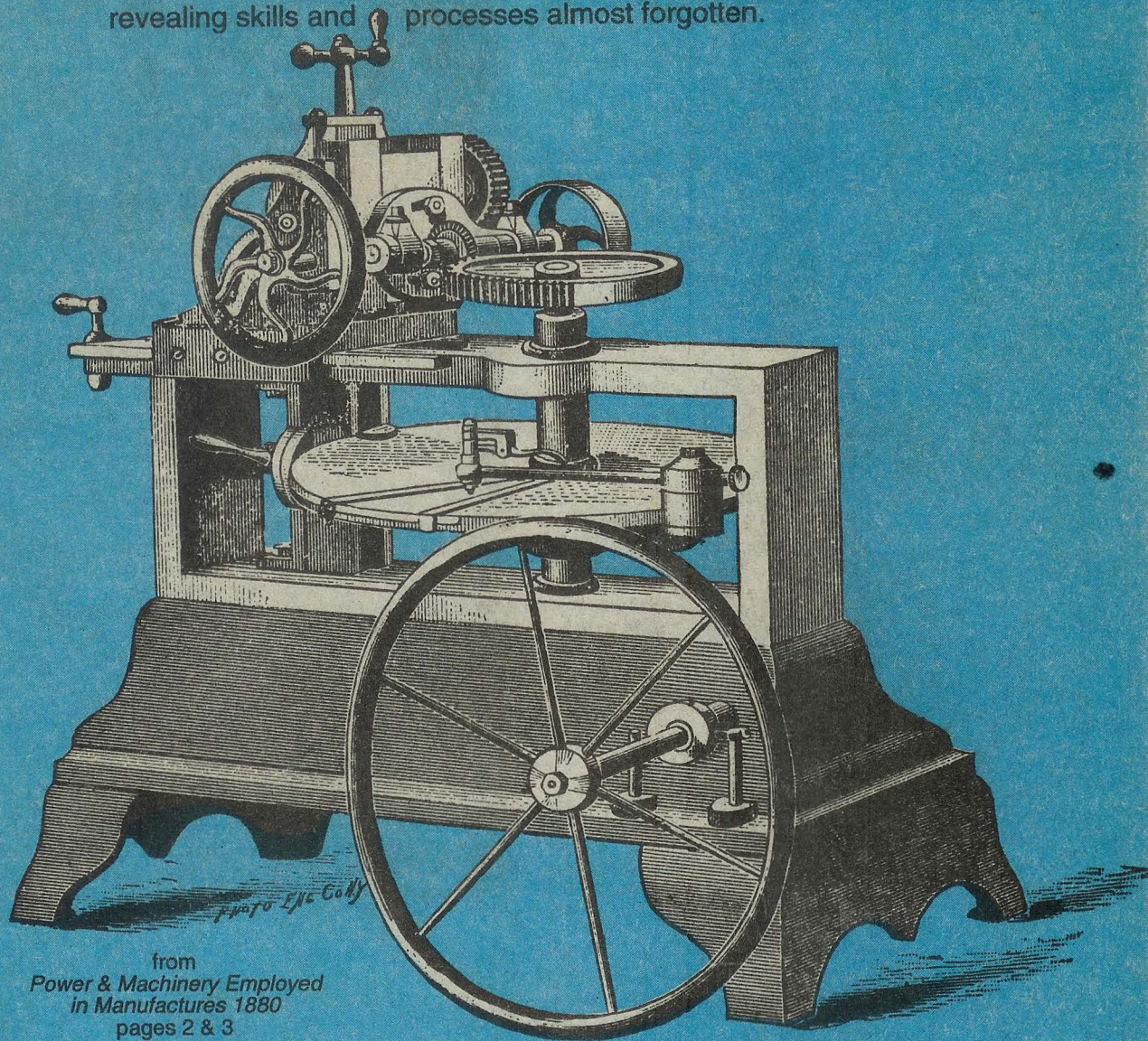


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from
*Power & Machinery Employed
in Manufactures 1880*
pages 2 & 3

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POWER ^{AND} MACHINERY

EMPLOYED IN MANUFACTURES

POWER AND MACHINERY EMPLOYED IN MANUFACTURES

by U.S. Dept Interior, Census Office
reprinted by Lindsay Publications Inc

1880

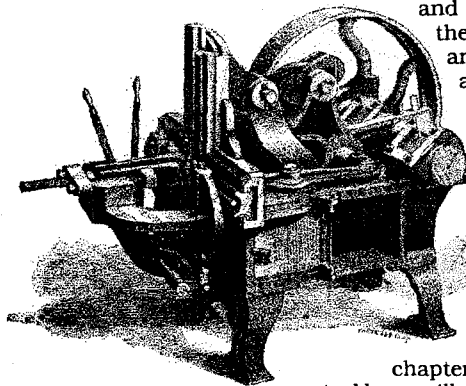
NEW!

The complete title of this absolutely amazing picture book is "Report on power and machinery in manufactures, embracing statistics of steam and water power used in the manufacture of iron and steel, machine tools and wood-working machinery, wool and silk machinery, and monographs on pumps and pump engines, manufacture of engines and boilers, marine engines and steam vessels. Prof. W. P. Trowbridge, Chief Special Agent. Also report on the ice industry of the United States, by Henry Hall, special agent."

Our tenth census was held in 1880, but it wasn't until 1888 that this picture book finally came of the press. It's an especially amazing production when you consider that there was no low-cost, practical way to print photographs at that time. Every illustration in this jam-packed book is a hand-made wood engraving!

Over ten years ago, Lindsay Publications produced a small book entitled the "The Machine Tools of 1885". It was extracted from this master volume. If you have seen that book or know of it, you know what is contained here. This is the complete volume, cover to cover.

The general table of contents includes General Letter of Transmittal; Statistics of Steam and Water Power Used in the Manufacturing of Iron and Steel; Machine Tools and Wood-Working Machinery; Wool and Silk Machinery; Pumps and Pumping Engines; Manufacture of Engines and Boilers; Marine Engines and Steam Vessels; and Report on the Ice Industry of the United States.



The first chapter on power for iron and steel has no illustrations. But the next section on machine tools and wood-working machines contains 570 engravings covering everything from a sash and door groover head and molding machines to 10 foot plate bender and 84 inch lathe. It's like walking through the most modern metal and/or woodworking shop of 1880.

You'll find page after page of fascinating pumps illustrated, many of which look like the one-lung engines that would follow in just a few years. Ten pages of incredible fire engines follow.

You'll find about thirty great engravings detailing the silk and wool industry. You can explore carding machines, a forty-harness loom, a Davis & Furber wet gig, a wool oiling machine, a burr-picking machine and much more.

The report on the manufacture of engines and boilers talks

about 1880 state-of-the-art and throws 32 engravings at you to prove its points. You'll see traveling cranes, portable drills, a pneumatic riveter, Colt's armory engines, an Atlas slide-valve engine, a Corliss engine with a wrought iron frame, a Buckeye engine, a Ball engine, a Cummer Engine, and on and on.

Next steam boat buffs can take note. The text discusses all kinds of things including engines of New England steamers, engines and boilers of the "City of Augusta", flue-boilers, boilers of Gulf steamers, side-wheel steamers, compound engines of an ocean steamer, engines of Mississippi river steamers, and more. Thirty eight engravings will show you the engines of the "Louisiana", "Hudson", "Susquehanna", "City of San Francisco" and more. You'll too sets of river-boat boilers, the deck plan of the steamer "Montana" and more.

Finally, explore the ice industry back when mechanical refrigeration new technology just being introduced. You get great engravings showing the tools and techniques of cutting winter ice and storing for summer use in insulated ice houses.

Although you'll love the illustrations, you'll also get page after page of statistics detailing the number of tons of ice sold, the number and tonnage of steam boats operating in a given state, the number of machine shops building steam engines and the number of people employed there, and so on. This is a great historical snapshot of a long gone era.

Obviously many (and possibly most) of these engravings were done by manufacturers for advertising purposes, and no doubt have been reprinted somewhere else. But I don't recall seeing them anywhere. It makes little difference. Seeing them all together in one giant volume provides a sweeping picture of American industry more than a century ago.

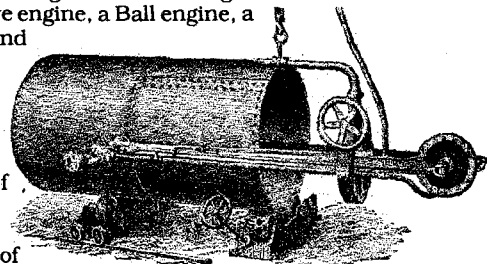
A few plates were tipped-in (that is, pasted in by hand). We have spread those large plates across two pages to keep costs down. Had we had them tipped-in like the original I would have to price the book at almost twice what I'm asking here.

Great book. I've had it for years. I'm just now getting around to printing the whole thing. This is a must-have for the antique machinery nut, historian, restorer, collector and builder. The price is high (at least for Lindsay books), but it is really quite a bargain. Other publishers would ask a lot more. It doesn't get any better than this. Order a copy.

8 1/2 x 11 hardcover with extra thick boards reinforced end-sheets about 672 pages

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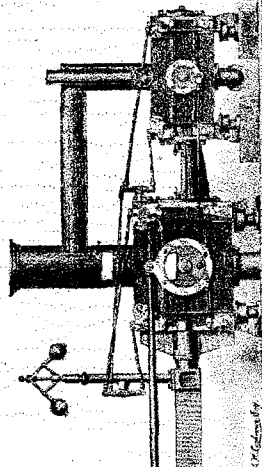
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Wall-to-Wall Machinery Engravings

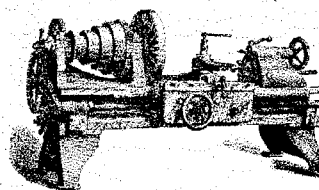
MANUFACTURE OF CORRUGATED PAPER

Steam-jacketing "insulates" the exterior of all cylinders by circulating water or brine so as to prevent the condensation upon them of the cooling steam and safeguard the firebox to very great extent. It is far less than that which a 12 per cent. fire loss costs \$6 to 10 per cent. with well-baked engines and 18 per cent. or more with engines in operation. (H. A. Holt.)

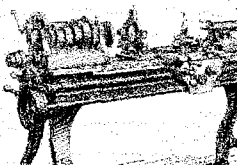


MACHINE-TOOLS AND WOOD-WORKING MACHINERY

the method of producing the spindle from end to end, all depends from the tail end. It is known by the fact that the end of the spindle is secured a handle-shaped ring or collar, which serves to hold the spindle from which the arms are formed and to take the strain. When left in the spindle, the collar only put under the handle, instead of being

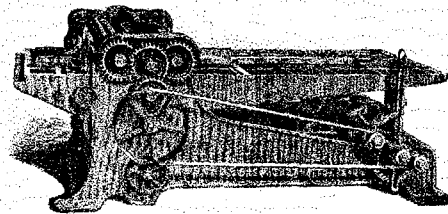
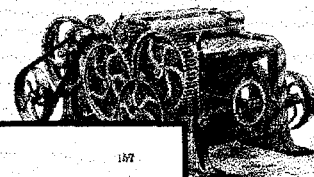


17. 18.

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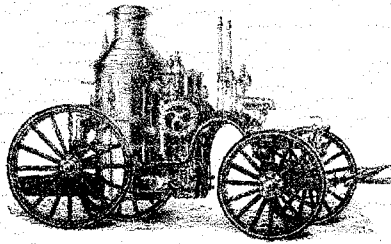
218 MACHINE-TOOLS AND TOOL-WORKING MACHINERY

The 160 shows a type of machine for paper off-setting and coating. After the tone, title has been set, the finished copy is stamped from spraying. It is rolled with the original part in having the same printed in the reverse by the reverse. There are four rollers, and the counter-sheet is held in the lower extension of the machine. The finished copy is removed by drawing the paper out.

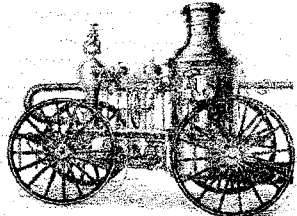
 $\hat{\sigma}_{\beta_0}^2 = 0.15$ [illegible]

PUMPS AND PULPING EXPENSES

There is no connection among goods with utility. Another arrangement is to make the income account the only one, leaving the latter to the utility of each individual separately. In such case of self-protection the utility is not affected, and the individual's utility is not affected, and the utility is not affected. The utility is not affected, and the utility is not affected.



also decreasing the shock felt by the pump with the rear drive shaft. The main pump is a gear pump, which is the first of a series of second and third gears in a constant spring leg. The removal of the pump from the shaft makes the pump without driving the pump shaft. The flow of the general pump on the rear side is usually enough for the shaft, but it is not the only one in the row.

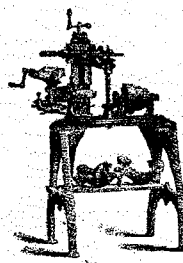
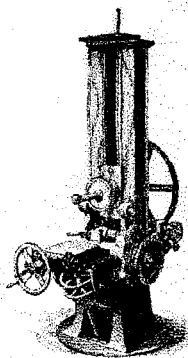


• 172 *Stylidium* sp. n.

When open at 2000 ft. The stream on the left was about 100 yds. wide, the other about 100 yds. wide, and more than 100 yds. apart in going toward the head of the stream. The stream on the left was about 100 yds. wide, the other about 100 yds. wide, and more than 100 yds. apart in going toward the head of the stream. The stream on the left was about 100 yds. wide, the other about 100 yds. wide, and more than 100 yds. apart in going toward the head of the stream.

DE-MILLING MACHINES

157

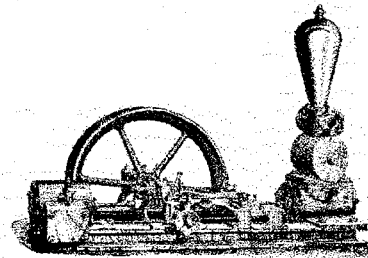


2. In the case of a change of ownership, the new owner must file a new application for a license within 30 days of the change of ownership.



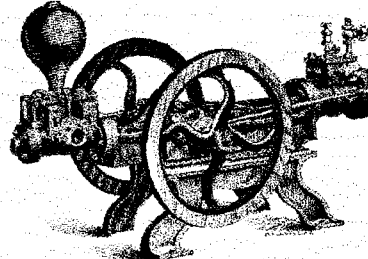
CRANK AND FLYWHEEL FORMS

A substitution of this type, using water and alcohol, and with GCM activation results in the cracks, as shown in Fig. 13. The result is a gradient from outside in, the double crack, opening at the ends of the gapped, which passes over the shaft. A third crack, which opens at the ends of the shaft, and the cracks in the shaft, and a crack opening in the end of the shaft, which is shown in Fig. 14.



Emp 5

Figure 10 shows a modification of this form suggested by the engine for "cold start" vessels. There are no apparent physical loads imposed in the piping cross-section above and/or below the centerline and for straight piping.



2 kg.

Power and Machinery

- **Machine Tools**
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- **Fire Engines**
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- **Boilers**
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- **More!**

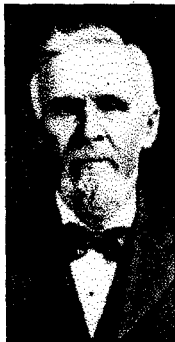
Machine Tool Inventors!

ENGLISH & AMERICAN TOOL BUILDERS

by Joseph Wickham Roe

reprinted by Lindsay Publications Inc

Do you really know who Mr. Pratt and Mr. Whitney were? Or Mr. Brown and Mr. Sharpe? Or Colt, Maudslay, or Whitworth? The answers are here.



Meet the men who invented and perfected machine tools. You'll read about and see French lathes from the 1770's, Wilkinson's boring machine, Samuel Benthall, Brunel and his shaper, Maudslay and his screw cutting machine. Discover a French screw cutting lathe from the 1500's! Also covered are fascinating details of the careers and the inventions of Joseph Whitworth, Eli Whitney, Blanchard and his gun stocking lathe, Samuel Colt and his armory, Root's chucking lathe, Francis Pratt, Amos Whitney, Frederick Howe, James Hartness, and others.

If you're just a dummy who just wants to beat a piece of metal with a hammer, then skip this. But if you consider yourself a knowledge machinist,

you should at least know who these people are. After all, they invented the tools you use. Any machinist who takes pride in his knowledge and skill will want to read this fascinating 1916 classic.

Meet some of the most talented machinists who ever lived. Great reading. Entertaining. Get a copy. Top recommendation!

5 1/2 x 8 1/2 paperback 416 pages

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HARDCOVER EDITION

A small fraction of the price of the hardcover bound for collectors. Sup.

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Fred Colvin Recalls Sixty Years with Men & Machines

60 YEARS WITH MEN AND MACHINES

by Fred H. Colvin

reprinted by Lindsay Publications

"Mr. Machine Shop" was 79 when he wrote this, his final book. He figured by that time in 1947 he had written over 7 million words for publication both in *American Machinist* magazine and in his own books. Colvin started his machine shop apprenticeship in July 1883 and ended up as editor of *American Machinist* magazine.

Chapters include The Machine That Can Reproduce Itself, In the Beginning Was the Belt Drive, Giving the Machine a Voice, A Society Sponsors the Machine, High-wheelers and High Iron, Natural History of the Automobile, I Join the American Machinist, From Maxim to the Jet Plane, Machine Tools and the First World War, Tour of the World in Eighty Days, Machine Tools and Global Warfare, and finally, Past, Present and Future.

You'll find this volume to be filled with personal memories of famous men and incredible machines and how they created the world we know today — from the Columbian Exposition of 1893 to the jet fighters of World War II. You'll find photos of Starratt, Hartness, and other greats, locomotives, machine tools, the Wright brother's engine, the Maxim machine gun and much, much more.

This is like sitting on your great grandfather's knee and listening to his old machine shop stories. It's fun reading. Another one of many books worth having. You'll read it and reread it. Get a copy.

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Fred Colvin

Mechanisms & Machines Tools! Great Engravings!

THE ELEMENTS OF

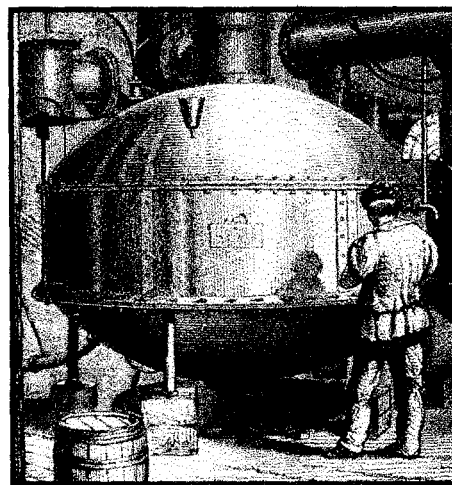
PRACTICAL MECHANISM AND MACHINE TOOLS

by T. Baker, C.E.

reprinted by Lindsay Publications

The illustrations in this 1867 British machine shop handbook are exceptional.

In part I you get information and illustrations on all types of mechanisms including lever and link-work, wheelwork, variable



motion by the rolling contact of wheels, intermittent and reciprocating motions by wheels, escapements and pendulums, and more. Within each chapter are numerous illustrated topics.

Part II covers machinery used in British industry in 1867 including pumps and other hydraulic machines, machine tools, machines for carding and spinning, the steam engine, machinery for manufacturing and refining sugar, labouring force

and friction, the production of glazed stoneware pottery, and Nasmyth on tools and machinery.

Great engravings. Great history. Great ideas. Get a copy and see what you think! 4x7 paperback 240 pages

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Workshop Appliances

WORKSHOP APPLIANCES

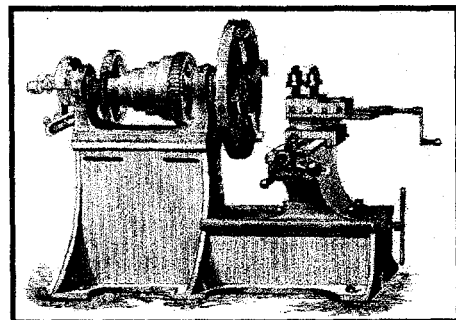
by C P B Shelley

reprinted by Lindsay Publications

"Workshop Appliances including descriptions of the gauging and measuring instruments, the hand cutting-tools, lathes, drilling, planing and other machine tools used by engineers."

This appeared in London in 1873, and was meant for machine shop apprentices and college students. Chapters include—on measures of length and methods of measuring; on hand tools used for wood; on hand tools used for metal; on the formation of straight-edges and surface-plates; on foot lathes; on power lathes; on drill and boring machinery; on planing, shaping and slotting machinery; on punching and shearing machinery; on the distribution of the motive power of machine-tools.

This is a snapshot of machine shop technology and know-how from over a century ago. You'll see everything from handsaws



and molding planes to huge break lathes. You'll see cutaway drawings of the latest slide-rests, the Whitworth quick return mechanism used on shapers, huge grindstones and radial arm drill presses, and much more. You get instruction in hand scraping, hardening and tempering, drilling with a bow-drill and more.

This is a small, pocket-size book with many pages and numerous engravings. A very hard-to-find book. Unusual. I think you'll like it. Order one. 4x7 paperback 312 pages

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Mr. Pratt Mr. Whitney



Accuracy for Seventy Years

ACCURACY FOR SEVENTY YEARS

by Pratt & Whitney

reprinted by Lindsay Publications

In 1860 Francis Pratt and Amos Whitney worked in the Phoenix Iron Works during the day, but at night formed a company to build machinery. By 1930 the small company they founded had grown into a giant corporation known throughout the world for its sewing machines, typewriters, machine guns, grinders, lathes, milling machines, packaging machines, and on and on.

To celebrate their 70th anniversary the company published this small pictorial history of their company. Although in many ways this is just slick advertising of the era, you'll find that it's a fun way to go back and see the original workers, their factory, the early machines they produced as well as the factory and their products as it appeared in 1930.

Although you get early history, most of the book is composed of photographs. And yes, the big wheels of 1930, just HAD to see their ugly mugshots in the book as well. They

may upset your stomach but the machinist instinct in you will appreciate the 1865 die sinker, the 1876 reciprocating hydraulic engine, the P&W interferometer that measured to the millionths of an inch, the bicycle wheel

rim spoke drilling machine, the cigarette packaging machine, the Gardner machine gun, the pistol rifling machine, as well as the machine shops, foundry & much more.

You'll discover this a fun book to page through and imagine that you were there when the company was new. Fascinating book. Get a copy. I think you'll like it! 6x9 paperback 118 pages

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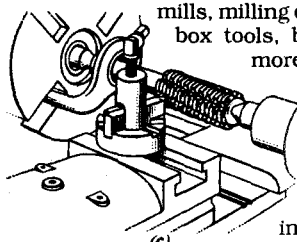
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TOOLMAKING!

TOOLMAKING 1935

by International Textbook Company
reprinted by Lindsay Publications

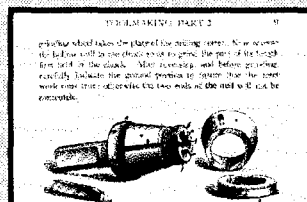
Learn about general toolroom work, equipment and processes, materials, the equipment of toolmaking, the processes, measurements, the limitations, examples and operations, cutting tools, tap fluting, hand taps, machine taps, taper taps, hobs, tap holders, square threaded taps, straight reamers, taper reamers, tool cutting, counterbores, hollow mills, milling cutters, solid and inserted tooth cutters, formed cutters, worm-gear hobs, end and slab mills, milling cutter grinding, box tools, broaching, and more. Learn about



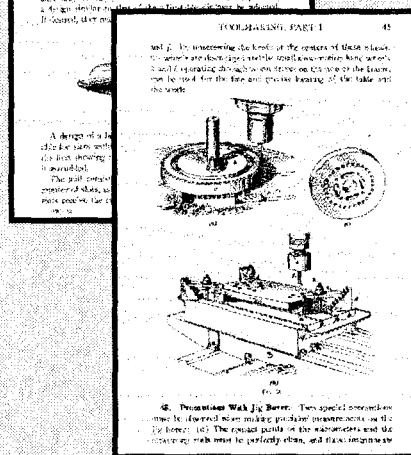
precautions with a jig borer, gearing of relieving attachments, effect of hardening a tap, profiling with a vertical

shaper, and much more.

This is a later edition of Toolmaking 1905 we offered a few years ago. And, yes, some of the material here is the same. But! Part of it has changed. And the illustrations have been updated to reflect the "new" technology of 1935. You'll find that this is a great book for beginning "tool and die" craftsmen.



12. Standard Blade Hallow Mills—The hallow mill, hollow with key, for ream and tapered blades. If made separately, a key and a hallow mill, the tool can be made in the mill.

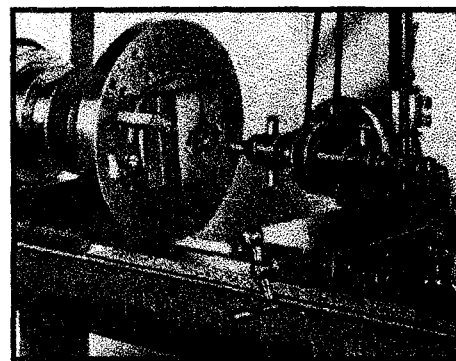


16. Precision Work Jig Borer. Two special operations may be observed when making precision instruments on the jig borer: (a) The round points in the workpieces and the centering may be perfectly clean, and then irregularly.

If you want to make and sharpen your own cutting tools rather than buy them, you should have a copy of this short and sweet, but quality book. You'll be hard pressed to find a general introductory text that covers so much for so little a price. An excellent book. A reference you should have. 5 1/2 x 8 1/2 paperback 184 pages

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PRECISION!

ACCURATE TOOL WORK

by Goodrich & Stanley

reprinted by Lindsay Publications

Here, you'll learn high accuracy machine shop methods in a series of chapters that were once articles in *American Machinist* magazine. The chapters include locating and boring holes in drill jigs, boring oblique holes in jigs, economical jig work on the milling

machine, boring holes on the miller and checking with verniers, a precision drilling and reaming machine, master plates and how they are made, master plates in die making, master plates in making watch tools, trigonometry in the tool room, a tool for laying out angles, and measuring dovetail slides, gibs and V's.

Other chapters cover a gage for producing accurate tapers, the microscope in the tool room, the microscope in the manufacturing

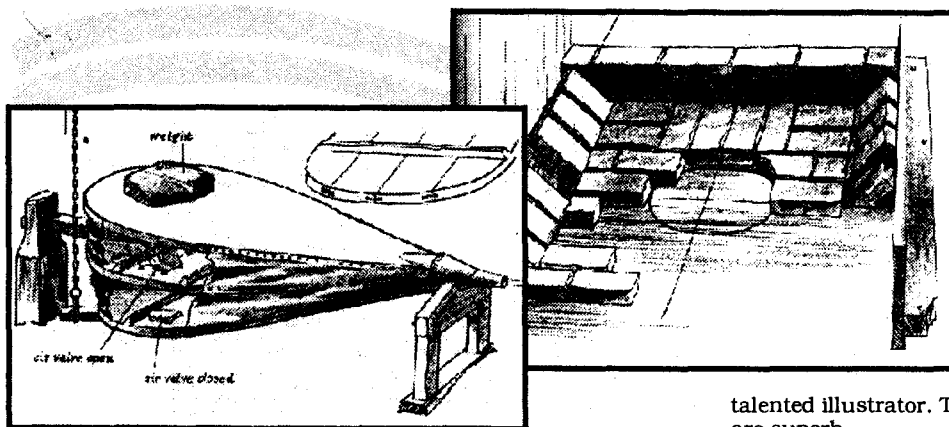
plant, making a set of accurate index dials, inspecting tools with the test indicator, a universal indicator and some of its applications, and two chapters on Swedish gages and their use.

Although first published in 1907 and 1908, these articles and the methods they reveal are still useful today. Even if they weren't, the chapters on making custom, precision master plates for an indexing head, and the precision indicator capable of indicating to thousandths of an inch are worth the price of the book.

Look over the shoulder of a precision tool maker, and at the very least, get ideas and inspiration that should improve your machine shop abilities. Loaded with drawings and photographs. Great ideas. Excellent lessons. Order a copy. 5 1/2 x 8 1/2 paperback 217 pages

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BUILD A HUGE FORGE!

Forge; Hardware and Harness; Shoeing a Horse; Wagons, Buggies, and Sleds; The Blacksmith in His World; Building a Forge; Building a Leather Lung Bellows and more.

The author is obviously not only a knowledgeable blacksmith but also a

talented illustrator. The pencil drawings throughout are superb.

I think the strength of this book lies in the last chapters describing two different large, bellows-ventilated forges. You get details on the firepot, the surrounding fire brick and detailed instructions and drawings on building the 4' 8" bellows. That's powerful enough to blow the lint out of your mother-in-law's navel at a hundred paces! You know this ain't no kid's stuff, here.

This has been around since 1977 and updated several times. It's not a book you'll find just anywhere. A goodie. Consider it. 7 1/2 x 10 paperback 171 pages
No. 1337

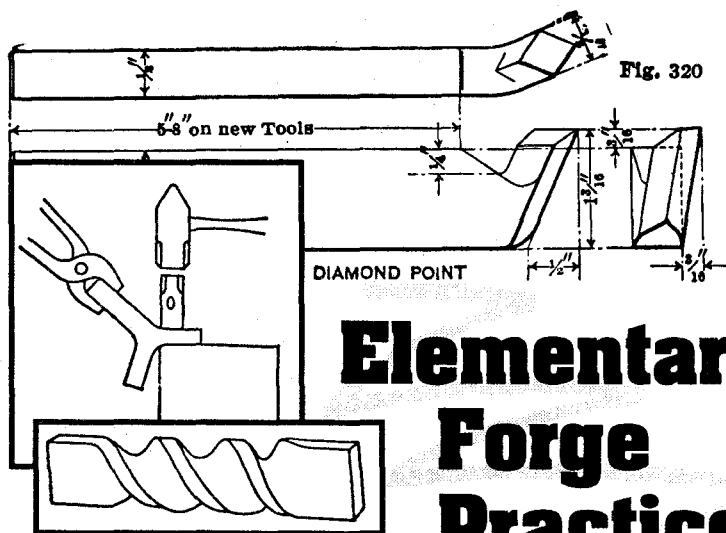
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THE BLACKSMITH - IRONWORKER AND FARRIER

by Aldren A Watson

Here you'll find great text and illustrations introducing you to blacksmithing and horse-shoeing. And although this is hardly the best teaching text for those wanting to work iron, there are interesting topics not often found in other books.

Chapters include: In The Beginning; Wrought Iron: Its Properties and Manufacture; The Blacksmith Shop and Forge Fire; Working at the



Elementary Forge Practice

ELEMENTARY FORGE PRACTICE

by John L. Bacon

reprinted by Lindsay Publications

Forge practice is metal working at its most basic level: heating, shaping and hardening. With it you can turn steel stock into boring bars, pliers, hammers and other useful tools.

Chapters include a general description of forge and tools, welding, calculation of stock for bent shapes, upsetting, drawing out, bending, simple forge work, calculation of stock and making general forgings, steamhammer work, duplicate work, metallurgy of iron and steel, tool-steel work, tool forging and tempering, and more. You get a number of tables and many pages of plans for useful learning projects: forge shovel, poker, C-clamp, bolt tongs, cold chisel, center punch, lathe cutting tools, scraper, hammers, and more.

You can make hammers, harden the faces, use a steam hammer with jigs and dies to make duplicate work, forge and grind lathe tools and much more. You learn skills that can save you money. A lot of this material is advanced 1908 "high-tech" material being used in industry not usually found in craftsman type books.

If you're new to forge practice and/or blacksmithing or want more than the usual beginner's books, order a copy of this. You'll like it. 5 1/2 x 8 1/2 paperback 288 pages

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Build a Dave Wimberley FORGE

HOW TO BUILD A FORGE

by David Wimberley

Let Dave Wimberley show you how to

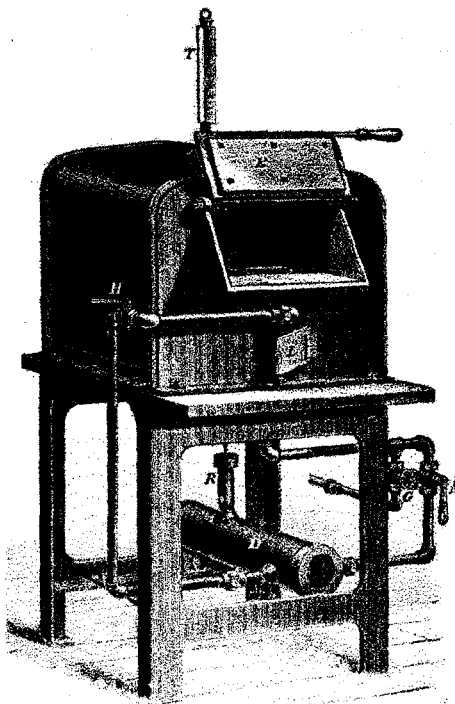
convert a standard water heater shell and old vacuum cleaner into a quality blacksmithing forge for very little money. This 20" diameter firebrick-lined design requires no welding and has a hood that with careful installation will allow you to operate the forge indoors without asphyxiating yourself.

Dave will show you how to use standard plumbing fixtures to pump in the air blast. He'll show you how to line the steel basin with firebrick and how to lay out the conical hood. He'll even show you how to make a refractory fire cover that makes the forge safer and more convenient to use. The only special tool you'll need is an abrasive cutoff blade for your power circular saw.

Here's an excellent proven design presented in an easy-to-understand fashion with excellent drawings and photographs. Set up a blacksmith shop and pound iron! Excellent plans! Order a copy today! 5 1/2 x 8 1/2 booklet 15 pages

No. 845

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HARDENING & TEMPERING

HARDENING, TEMPERING, ANNEALING AND FORGING OF STEEL

by Joseph V. Woodworth
reprinted by Lindsay Publications

One of the great advantages of steel is the machinist's ability to change its hardness simply by heating and cooling the steel in specific ways. You can make steel rock hard and brittle through hardening. You can soften it somewhat and make it less brittle by tempering. And if you want totally soft steel you can anneal it.

This 1907 third edition will show you industrial state of the art as it was then. It may be old, but the processes haven't changed. And when you see that this book is all how-to and practical recommendations together with great illustrations, you'll understand that this book is worth having.

Especially valuable information on making, hardening and finishing all types of tools, including mills, drills, taps, reamers, dies, countersinks and more. But be careful! This is old technology, and it can be very dangerous if you're not careful.

Get a copy of this helpful and useful book. Put one in your reference library. You'll have it when you need it instead of calling us someday and having us ship a copy by overnight courier at three times the price (if we still have it then). Order a copy today! 5 1/2 x 8 1/2 paperback 288 pages No. 20498 \$9.95

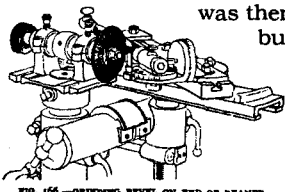


FIG. 155—GRINDING BEVEL ON END OF REAMER.



FORGE CRAFT

FORGE CRAFT

by Charles Philip Crowe
reprinted by Lindsay Publications Inc

Charles Crowe of Ohio State University has returned from 1913 to teach us how us the fundamentals of working iron, of being a blacksmith, and of being an artist in iron.

Chapters include the forge, tools, materials used, formed work, hooks and chains, welding, special welds, heat treatment, tool smithing, hardening and carbonizing, tempering and an additional chapter on metal-lurgy.

You'll learn the basics of bending and welding stock into rings, drawing tapers, forging a corner, and much more. You'll find these same lessons in other books, but here you get action photos taken with the work on the anvil. You'll learn what constitutes the design of a good hand forged chain hook. And then you'll be shown how to do it. You'll see how unusual welds are used in a forged swivel, a hook with eye, a square socket wrench and more. Study the photos and watch two professional blacksmiths forge a cutting tool for a large lathe. That's something to see.

This is not the ultimate how-to on smithing, but what makes it special are the photos, samples of unusual pieces of work, and the professional tone of the text. It's excellent and a must-have for the blacksmith. I had no doubts about reprinting it when I first saw it. Get a copy. It's good.

5 1/2 x 8 1/2 paperback 175 pages No. 21087 \$9.95

Blacksmith Shop & Iron Forging

BLACKSMITH SHOP AND IRON FORGING

reprinted by Lindsay Publications

Blacksmithing is the forging of iron with simple tools—the same forging process carried on today with enormous presses and dies.

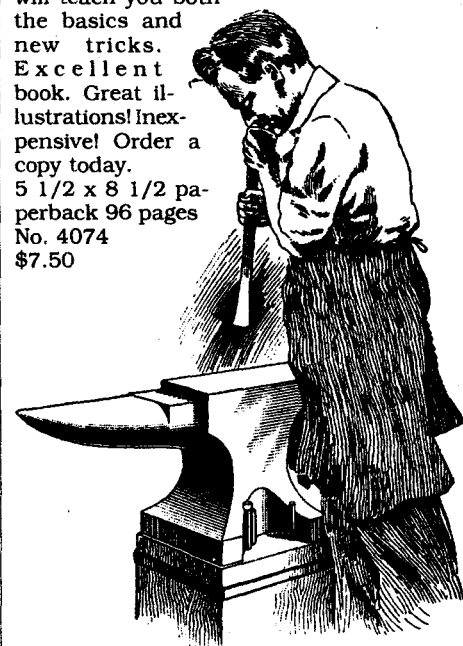
There are a great many books that will show the usual blacksmithing projects, but have you ever made a bolt head by welding on a ring? Have you made a rocker arm? How about a steam locomotive reverse shaft? Or a rudder frame?

Besides these rare topics, you get a complete discussion of blacksmith shop equipment: the forge, tuyeres, bellows, hood, chimney, fuels, anvil, all types of hammers, chisels, and all the rest.

The second part will teach you about the making of cast and wrought iron and basic operations of forging. You'll make an eye hanger, gate hook, and other educational projects. You'll learn how to weld and make a small chain and tongs.

Although blacksmithing today is almost a fine art, it was once a basic machine shop skill needed in day-to-day operations. This 1906 technical school textbook

will teach you both the basics and new tricks. Excellent book. Great illustrations! Inexpensive! Order a copy today. 5 1/2 x 8 1/2 paperback 96 pages No. 4074 \$7.50



Machine Blacksmithing

Machinery Reference Series No. 44

MACHINE BLACKSMITHING

reprinted by Lindsay Publications

In this great booklet from 1910 you get five sections: system in the blacksmith shop, tools for the blacksmith shop, anvils and forges, power hammers and forging appliances, and the steam hammer and its use.

You get the usual basic information on tools and equipment, but you also get a look at blacksmithing as an industrial skill. You get practical tips on hardening and tempering, working with surface plates, vises, and power hacksaws, diagrams of dies for use in a steam hammer, and a couple of informative sections on the use of power forging hammers.

Obviously, this booklet is not going to give you an in-depth education but I'll bet you'll learn at least a few new things and be entertained in the process. Get a copy. Cheap. 5 1/2 x 8 1/2 booklet 48 pages No. 21362 \$3.95

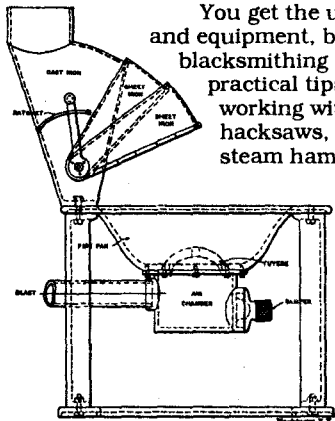


Fig. 31. Steam Hammer with Chain-hoist Head, Press and Adjustable Sheet-iron Folding Bed



Metal Spinning

Machinery Reference Series No. 57

METAL SPINNING

reprinted by Lindsay Publications

Here's a great little 1910 booklet from the publishers of Machinery magazine that will introduce you to metal spinning. You'll be shown the tools, chucks, and forms, you'll need and how to use them to create a nose cone for that rocket you're building to send your mother-in-law to the moon. Well... The truth is you'll see a zinc lamp shade spun in one operation, a German silver reflector for a light, copper and aluminum forms that look like spittoons, and more.

This is a great introduction into converting sheet metal

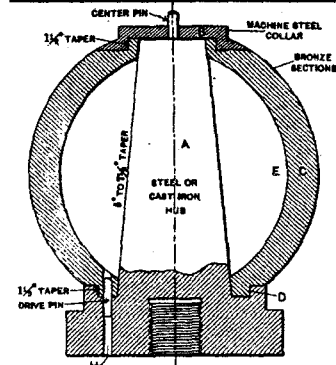


Fig. 31. Elevation and Plan showing Construction of Sectional Chuck

into beautiful and useful three dimensional forms. This is a skill to have. Order a copy. The price is right. 5 1/2 x 8 1/2 booklet 38 pages No. 21370 \$3.95

STRELINGER 1895 TOOL CATALOG

1895 TOOL CATALOG

by Chas. A. Strelinger & Co.

reprinted by Lindsay Publications

Here is by far the most interesting tool catalog I've ever seen! With wall-to-wall engravings you'll see every tool a 1895 machinist could

possibly want, from calipers and rules to lathes, milling machines, drill presses, steam engines, boilers, and even fire trucks! You'll find fascinating commentary reprinted from American Machinist magazine that throws a good many ideas at the reader encouraging him to clean up his act and try something new. This is a time machine with which you can go back to visit an old machine shop.

One of the best tool catalogs ever!

You get well over 500 pages of "A Book of Tools, being a catalogue of tools, supplies, machinery and similar goods used by machinists, engineers, blacksmiths, model makers, foundries, moulders, draughtsmen, inventors, and amateurs, and manufactories, mills, mines, etc., etc. Chas. A. Strelinger & Co., manufacturers and dealers, Detroit, Michigan, U.S.A."

Whaddaya lookin' for? A four-jaw chuck? A surface plate? No problem! Back then you could order an open back single-acting punch press, a 16" engine lathe with plain gib rest and taper attachment, a 6" B&P Shaper, a Snyder drill press, a Brown & Sharpe surface grinder, Roger's saw filer and gummer, locomotive oilers, a 19 hp 7x8 Climax horizontal steam engine, an H&H 8 hp portable steam engine and boiler, a Springfield gas engine, and even a horse-drawn fire truck! You'll find lots of engines, safety valves, indicators, steam pumps, clutches, pulleys, flywheels, even telephones, clocks, gauges (ammonia, compressed air, etc), spinning lathes, packaging machinery, and much, much more.

This is full tilt! ...something any machinist, restorer of machine tools, machine designer, tool collector, or historian should have. — no ands, ifs, or buts! This was reprinted at the suggestion of a retired Smithsonian curator, and the original he loaned us is yellow, brittle, and falling apart. It had to be saved.

Get a copy of this. Yes, it's expensive, but it's worth it. Like everything else in this catalog, it's guaranteed. And like everything else in this catalog, it's quality, so you don't even really need a guarantee. It's the best tool catalog I've ever seen. Recommended. Order a copy. 6x9 sewn paper-back about 560 pages heavily illustrated

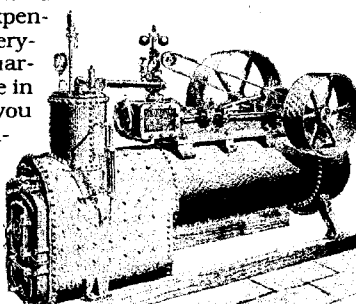
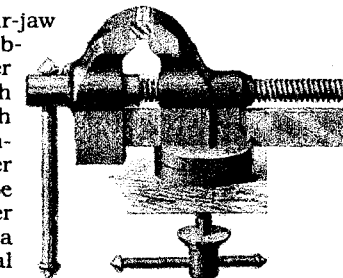
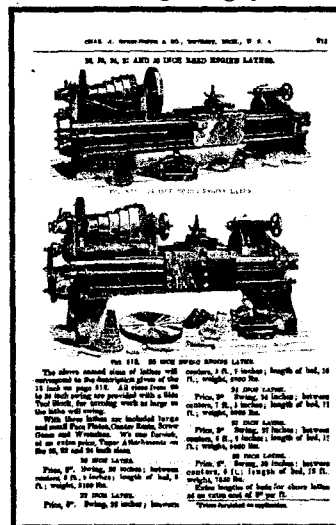
No. 20692 \$19.95

SPECIAL HARDCOVER EDITION

for libraries and collectors.

No. 20706

\$29.95



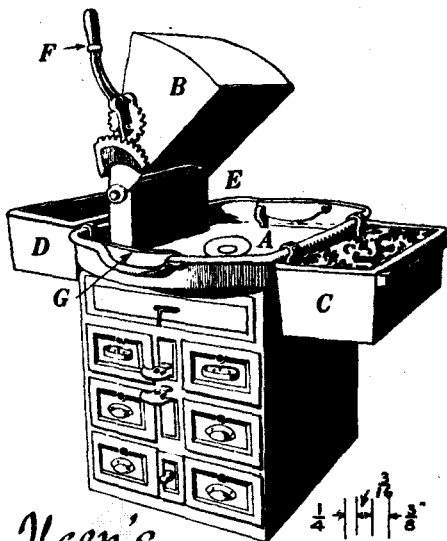
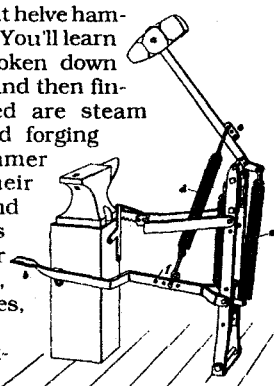
Hammer Work!

reprinted by Lindsay Publications

You'll see trip hammers, a foot operated hammer, rubber-cushioned helve hammers, upright helve hammers and others. You'll learn how work is broken down with a hammer and then finished. Discussed are steam driven helve and forging hammers, hammer foundations, their proper weight, and hammer tools such as porter bars, stocks, hacks, swages, dies, and more.

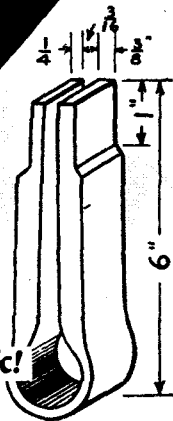
You'll find examples of hammer work such as welding layers of scrap into a single ingot, making axles, large iron shafts, crankshafts, connecting rods, and hollow forging. Learn how steel is welded to iron.

Excellent illustrations and easy-to-read text. 1906. Low price. Valuable reading for the blacksmith who is looking to power tools to expand his capabilities. Interesting reading for everyone. Get a copy. 5 1/2 x 8 1/2 booklet 36 pages
No. 20765 \$3.95



Ilgen's FORGE WORK

1912 Technical
School Textbook!



FORGE WORK

by William L. Ilgen

reprinted by Lindsay Publications

Ilgen, a teacher at Crane Technical High School in Chicago in 1912, produced a gem of a blacksmithing textbook. Every instructor has their own way of teaching, so this is subtly different from all other forging books.

Chapters include: tools and appliances, forging operations, practice exercises, treatment of tool steel, tool making and stock calculation, steam hammers, art smithing and scroll work, preparation and smelting of iron ore, manufacture of iron and steel, and formulas and tables.

You'll learn about the straight peen hammer, chisel tongs, the hot cutter, the flatter, the heading tool, swage block and so on. Then you'll learn hammer blows, upsetting, twisting, butt welding, and the other necessary smithing skills. For practice you'll make a draw spike, gate hook, square-corned angle, welded ring, chain swivel and so on.

You'll learn annealing, hardening and tempering, and case hardening. After stock calculations, you'll learn how to use the steam power hammer with discussions on circular cutter, trimming chisel, spring fullers, and more. Art smithing will show you the basics of decorative iron work, and then teach you how to make an a Jardiniere stand, umbrella stand, andirons and more. The last couple of chapters show the forging student how his raw material came into being.

Excellent book! Lots of drawings and a number of interesting, but somewhat "muddy," photos. A book worth having. Get one! 5 1/2 x 8 1/2 paperback 210 pages
No. 21206 \$9.95

Manual of Blacksmithing

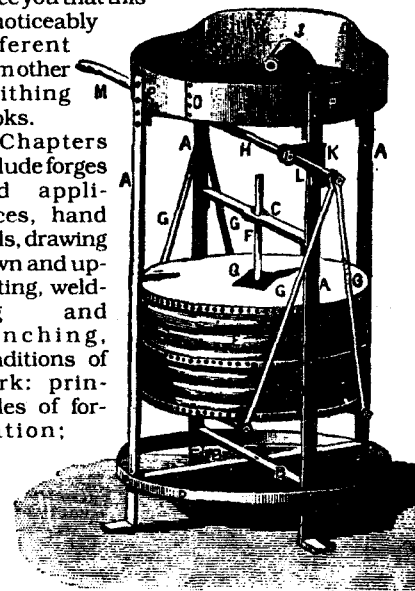
MANUAL OF BLACKSMITHING

by John R. Smith

reprinted by Lindsay Publications

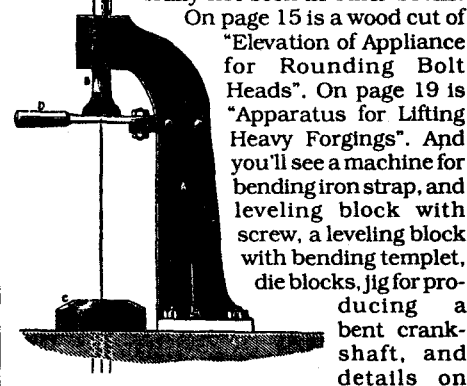
From 1902 comes this - yet another blacksmithing manual. A glance will convince you that this is noticeably different from other smithing books.

Chapters include forges and appliances, hand tools, drawing down and upsetting, welding and punching, conditions of work; principles of formation;



bending and ring making; examples of forged work; cranks, model work, etc.; homemade portable forges, and manipulating steel at the forge.

This is not a great blacksmithing textbook. Other books do a far better job of teaching the basics. What makes this special are topics generally not seen in other books.

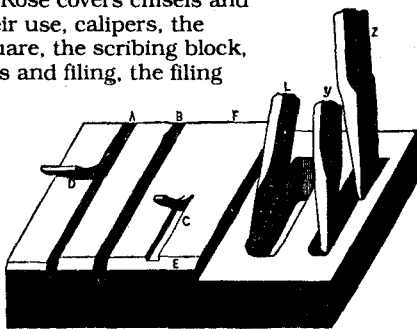


On page 15 is a wood cut of "Elevation of Appliance for Rounding Bolt Heads". On page 19 is "Apparatus for Lifting Heavy Forgings". And you'll see a machine for bending iron strap, and leveling block with screw, a leveling block with bending templet, die blocks, jig for producing a bent crankshaft, and details on building two different portable forges including construction details on the two-stage foot-operated bellows, and more.

In other words, this book glosses over the basics and throws some interesting hardware at you. No doubt, with imagination you can build your own improved models of this equipment. Great illustrations. If you spend hours at the forge or are preparing to, this is something worth adding to your library. It's worth having. Get a copy. 4x7 paperback 158 pages
No. 21281 \$9.95

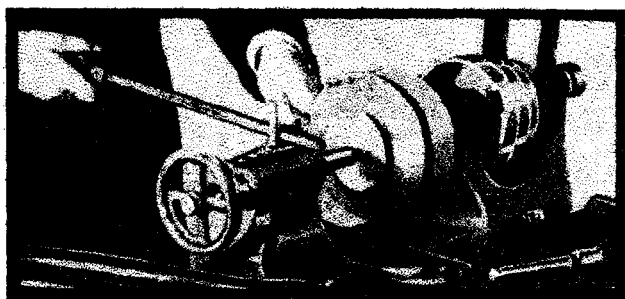
Vise Work by Joshua Rose

Rose covers chisels and their use, calipers, the square, the scribing block, files and filing, the filing



out of templates, scrapers and scraping, vise clamps, peening, fitting brass bearings to their boxes, fitting link motions, fitting cylinders, scraping surfaces, making a surface plate, how to cut hard saw blades, how to refit leaky plugs to their cocks, refitting work by shrinking it, how to seal steam and water joints, and fitting connecting rods.

If you're into building machine tools, steam engines, or just want to become an expert in working with basic hand tools just as 19th century mechanics were, you should have a copy of this. It's great instruction from another age at a very reasonable price. Get a copy. 5 1/2 x 8 1/2 paperback back 58 pages
No. 20277 \$5.95



Fred Crashaw's **METAL SPINNING**



METAL SPINNING

by Fred Crashaw

reprinted by Lindsay Publications

Mount a piece of sheet metal in your lathe and spin it into a beautiful dish, vase, candlestick, pitcher, or nose cone for a Patriot missile. You can do it!

The subtitle reads- "Practical instruction in a fascinating art."

This small book, one of the Popular Mechanics Handbooks, appeared in 1909. Chapters include the lathe and its parts, tools, the preparation of metal for spinning, how to spin a hollow dish, how to spin a deep dish, how to spin a vase, and how to spin some unclassified forms.

You'll find a good many illustrations, most of them being simple drawings of the tools and chucks you'll need. You get details on preparing brass, zinc, aluminum, copper, and white metal for spinning.

It's a small book with right-to-the-point instructions that will allow you to create decorative and functional housings for your projects, large hollow terminals for Tesla coils and Van de Graff generators, and many other objects like a bullet-shaped headlight shell for your 1938 Desoto!

Great little book at a great little price! Get one. 4 1/2 x 7 paperback 72 pages
No. 20714

\$3.95

Reagan & Smith's **METAL SPINNING**



METAL SPINNING FOR CRAFTSMEN, INSTRUCTORS, & STUDENTS

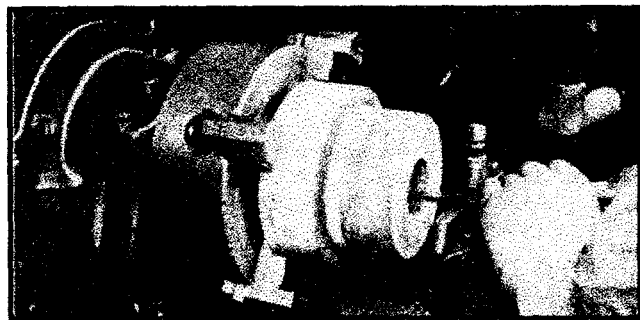
by Reagan & Smith

You can chuck a solid block of metal into a lathe and cut enough of it away to get the shape you need. You can also chuck a piece of sheet metal in the same lathe and using slightly different tools spin it into a smoothly contoured

shape that can become anything from a teapot to a missile nose cone.

In this quality book you'll learn historical facts about metal spinning, why people are interested in spinning, the necessary mechanical set-ups, spinning tools, chucks for spinning, the treatment of different metals, lubricants to be used, the actual process of spinning, and educational as well as useful projects.

There are plenty of shop courses around that will teach you how to turn a bronze bushing. But have you seen any instruction offered



on turning a sheet of copper into a beautiful vase or candlestick?

You'll enjoy this 1936 technical school textbook. It's simply written, loaded with valuable illustrations, and gets right to task of teaching you spinning. Master this skill. It's not all that hard, but very few people, including expert metal workers, know how to spin. You can learn how with this book and some elbow grease. Excellent book on a rarely taught skill. Order a copy!

5 1/2 x 8 1/2 paperback 80 pages
No. 4830

\$9.95

Turn flat sheets of copper into beautiful forms!

COPPER WORK

by Augustus F. Rose

reprinted by Lindsay Publications

In 1908 this small, well illustrated, and very interesting how-to manual was published for high school students. Admittedly, some of the projects are dreadfully simple, but others amaze me. I would be hard pressed to turn a flat sheet of copper or brass into a beautiful pitcher like these kids do.

You'll learn what types of saws, hammers, and anvils to use. You'll learn how to make simple objects such as hinges and finger pulls, and then you'll graduate to box corners.

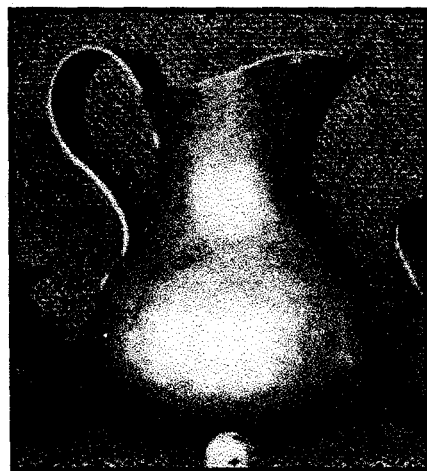
The fun starts when you anneal a sheet of copper and start working it on an anvil to produce a pitcher, porringer, bowl, ink pot, or a spoon. You'll learn how to make rivets, draw wire and small tubing, polish, make a stamp out of tool steel, and even some simple enameling.

This book is designed for young people who are to be assisted by a teacher. The instructions are therefore brief, maybe even too brief, and the illustrations numerous. But I expect that you have at least a little mechanical ability, so you shouldn't need extremely detailed instructions anyway. Many pages are covered entirely with photos and/or drawings to instruct and inspire.

I won't tell you this is the greatest book ever written, but it is a lot of book for a modest price. It's just for the fun of it. Or perhaps you can turn out a product to sell at arts & crafts shows. No matter what your angle, I think you'll like this. Order a copy. 5 1/2 x 8 1/2 paperback 123 pages

No. 20145

\$6.95



HOW TO RUN A LATHE 1942
by South Bend Lathe Works
reprinted by
Lindsay Publications
Here it is! Finally!

South Bend Lathe still produces a modern edition of this book and will sell it to you at a price much, much higher than ours. We've reprinted this 1942 edition of "Run a Lathe" because copyrights on it have expired. It's new enough to be very similar to current edition, and yet old enough to be applicable to a lot of the older lathes still in use. I think you'll find that differences between this edition and the current editions are very few. Bench lathes have not changed much in decades.

This is the lathe manual that Dave Gingery raves about, and a manual comparable in every way to Sheldon's lathe manual offered in our catalog. You get everything you could need to set up a lathe and get it running.

You get eleven chapters: history and development of the lathe, setting up and leveling the lathe, operation of the lathe, lathe tools and their application, hot to take accurate measurements, plane turning (work between centers), chuck work, taper turning and boring, drilling reaming and

How to Run a Lathe by South Bend Lathe



1942 Edition

tapping, cutting screw threads, and special classes of work.

All the basics are here from sharpening drills to you can center drill to "superfinished" turned bearings, grinding valves, and turning multiple screw threads.

Remember, this is an introductory guide that was no doubt shipped with South Bend Lathes back then. Under no circumstances are you going to learn what is covered in "Advanced Machine Work". This will get you going. And if you're just learning to use a lathe, you have to have a copy of this or something very similar. It's the nuts.

This isn't the current edition. In fact, belt driving the lathe is still covered. But it's completely useful. Great book. Great illustrations. And finally, a great price! Get a copy. You can't afford not to have one now. 5 1/2 x 8 1/2 paperback 128 pages

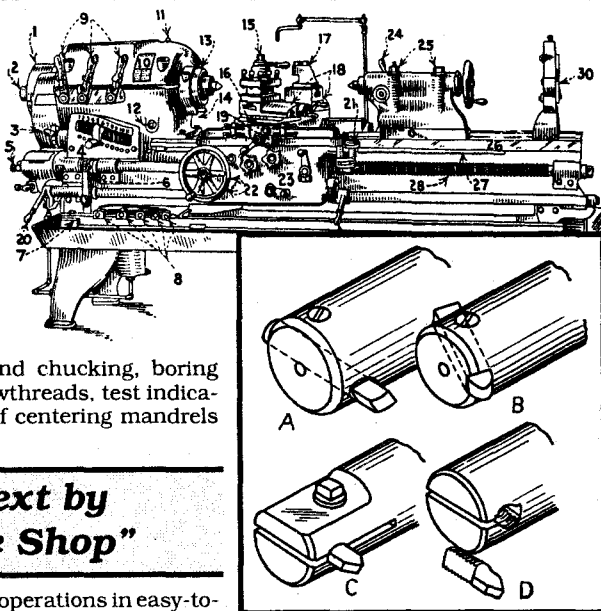
No. 21150

\$7.95

RUNNING AN ENGINE LATHE by Fred H. Colvin

If you're just starting out using a metal cutting lathe, or you're trying to learn techniques you feel you should have known all along, then grab this. This small, but jam-packed book will show you all the basic techniques of running a lathe.

Thirteen chapters cover the engine lathe, centering lathe work, driving the work, tools and turning, steady and follower rests, faceplate work, chucks and chucking, boring tools, taper turning, cutting screwthreads, test indicators and their use, three types of centering mandrels and care of the lathe.



Running an Engine Lathe

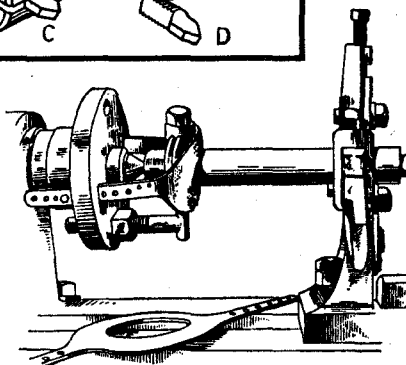
"Practical suggestions which will give the young machinist or apprentice the foundation principles of engine lathe work."

**A Classic Text by
"Mr. Machine Shop"**

You'll learn all about essential operations in easy-to-read and understand text illustrated with simple, clear drawings. You'll learn about different kinds of dogs (not the barking type), split collars, toolholder and bits, work with shoulders, boring the end of a bar, home-made follower rest, saving a poor casting, bridle for faceplate work, slotted chucks for flat work, precision drilling, boring cylinders, ways of figuring tapers, rapid thread cutting, cutting a double or triple thread, cutting Brown & Sharpe worm threads, using dial indicators, and much, much more.

There are many tables describing tapers, V threads, square threads, ACME threads, grinding angles on many different tools, and more.

The author was an old man when he authored this in 1941.



He was editor emeritus of American Machinist magazine, and was the Colvin of Colvin & Stanley fame that turned out American Machinist handbook and countless texts. The man was an expert machinist.

Here's a great little book at a great little price that you can't afford not to have, especially if you consider yourself a beginner on a lathe. Excellent book! Bargain price. 5 1/2 x 8 1/2 paperback 117 pages

No. 4708

\$6.95

Popular Mechanics 1925 LATHE HANDBOOK

Popular Mechanics
LATHE HANDBOOK NO. 1 - 1925
reprinted by Lindsay Publications
Great book! Incredibly fun to read!

You get a compilation of metal lathe articles that ran in the pages of Popular Mechanics magazine in the early 1920's. The articles are interesting and informative, the ideas they generate are valuable, and the illustrations are even better!

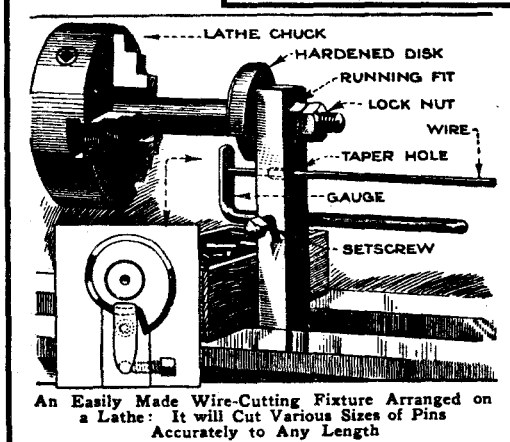
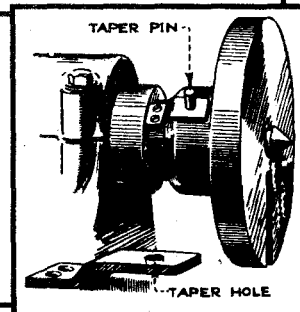
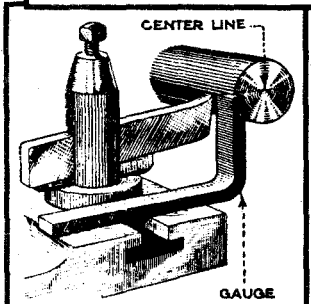
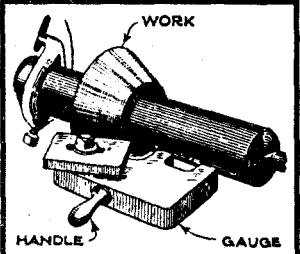
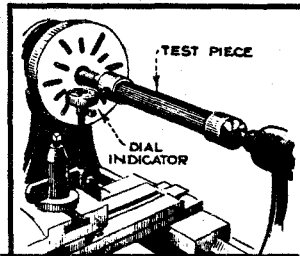
Page one starts with a detailed article on building a 6" bench lathe. Then you get dozens and dozens of smaller, well-illustrated articles describing a simple chip shield, auto hub as lathe and drill press, special lathe tools and attachments, lathe tool for radius cutting, simple relieving attachment for the lathe, and more. Learn how to make a tool holder with a set of cutters, a revolving tool holder for the lathe, a lathe center-hole mandrel, ball-bearing tailstock center, adaptable jig for turning pulleys in a lathe, and on and on. You get plans and instructions for making a variety of indicators, gauges and test jigs.

Enjoyable picture book!

Hold small screws in the lathe. Support long, thin bars. Build a adjustable universal chuck. Learn about an unusual method used to reface a large wheel on a lathe rigged as a grinder. And there's much more - from straightening a bent reamer and a device for winding spiral springs to making a quick-acting tap holder and milling flutes in taps and reamers.

You probably already know many of the hints, kinks, and methods presented here. But there is so much, I'll bet you'll learn something new the minute you page through this jam-packed book. Any machinist will enjoy just looking at the incredible illustrations. I knew this was something that should be reprinted the moment I saw it. You'll like it too. It's inexpensive, and definitely worth having. Order a copy!

6x9 paperback 87 pages
No. 20838



An Easily Made Wire-Cutting Fixture Arranged on a Lathe: It will Cut Various Sizes of Pins Accurately to Any Length

Lathe Operations

LATHE OPERATIONS

by J. W. Barritt

reprinted by Lindsay Publications

If you've seen Shaper Operation or Planer Operations, then you know what this about.

You get a brief introduction to the lathe, cutting speeds and lubricants, cutting tools and their use, and then you get detailed step-by-step lessons.

You'll learn about grinding centers, aligning tailstock center to a test bar, machining a steel pin, machining a steel shaft, machining a forged steel shaft, machining a forged steel rotor, machining a forged steel gear and spindle, machining a forged steel roll, machining a spotting bar (for Morse and Brown & Sharpe Tapers), and Machining a Tool Steel Lathe Center.

After a straight-to-the-point discussion of screw cutting, you'll learn the secrets of machining a forged steel body-bound bolt, machining a machine steel taper bolt, machining a tool steel screw, machining a machine steel worm, and more. When you're done with these lessons, you'll be able to cut a quadruple 1/4" pitch, 1" lead Brown & Sharpe RH thread, a 4-pitch right hand single Buttress thread, left-hand Whitworth thread, a 29° Acme screw thread, and on and on.

And the lessons continue. Machine a cast-iron hand wheel, a cast-iron

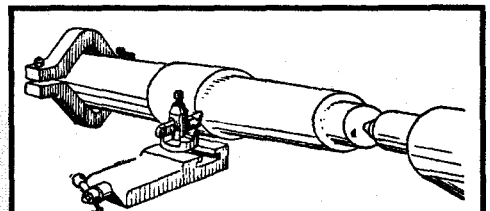


Fig. 2. When turning long pieces, it is necessary to watch the dead center constantly and keep it lubricated. A great deal of trouble can be saved by this simple precaution.

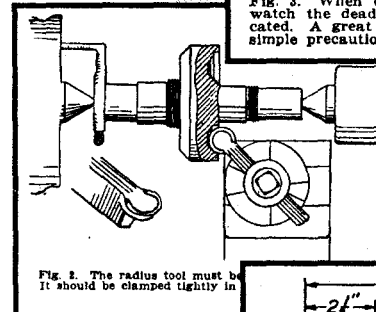


Fig. 1. The radius tool must be clamped tightly in.

Great Lessons in Lathe Operation!

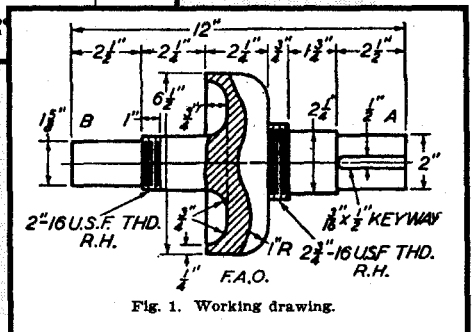


Fig. 1. Working drawing.

gear, worm, cylinder head, a cast steel trunnion, a brass spacing washer, a brass taper sleeve, a cast-iron packing box bushing, and many more.

Within these lessons you'll learn to machine a dovetail surface, ream a taper hole, how to center a casting with a shifted core, how to under cut, how to cut an internal taper thread, how to use a steady rest and pot chuck, machine a crankshaft, and much more.

Here's a machine shop course you can take at your own speed. Combine this with several other quality books from this catalog, and you can become an expert machinist. If this were published today, it would probably cost you at least twice our price. And how much of this has changed since 1937? Zilch.

Get a copy of this. It's quality. You'll like it. Worth having.

8 1/2 x 11 paperback about 176 pages

No. 21109

\$13.95

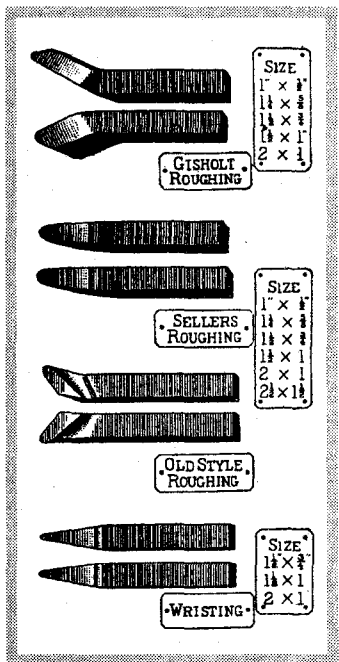
TOOL DRESSING

TOOL DRESSING

reprinted by Lindsay Publications

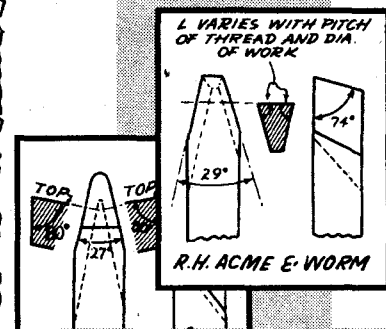
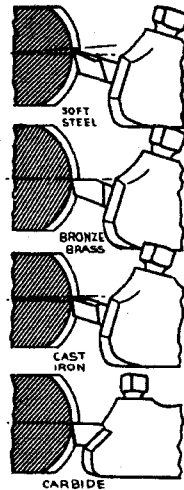
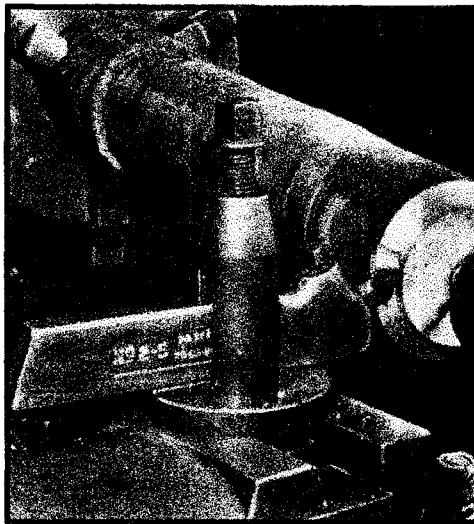
From a 1906 volume published by International Textbook Company comes *Tool Dressing*.

Discussion starts with the differences between high-carbon steel, alloys, blister, shear and crucible steel. Then you learn about the characteristics of the steel used in 1906 razors, saws, spindles, chisels and so on. Next, you make a wedge-shaped specimen piece and are shown how to harden it, and then draw the temper using color as a guide. This material is available in many other books.



Of special interest in this publication are the instructions on forging, hardening and tempering a cold chisel, and then doing the same for a cape chisel and a 5 3/4" cross-peen hammer. You'll learn how to make a diamond-pointed lathe tool, a right-hand side lathe tool, and a boring tool. Next, you'll find instructions on making stone chisels, a special hardie for stone drills, dressing stone drills, dressing marble turning tools, on making a flat spring, welding tool steel, making flat drills, and on hardening and tempering high-speed steel.

This is great reading for blacksmiths. Machinists who want to make their own lathe tools will find this valuable. Excellent illustrations and easy-to-read text. Low price! Get a copy. 5 1/2 x 8 1/2 booklet 36 pages No. 20773 \$3.95



Care and Operation of a Lathe

THE CARE AND OPERATION OF A LATHE

by Sheldon Machine Co, Inc
reprinted by Lindsay Publications

For years the best little lathe handbook available was "How to Run a Lathe" by South Bend Lathe. Not long ago, South Bend apparently decided to get out of the book business by more doubling the price of the book and by refusing to give any reasonable wholesale discount to dealers like me. In my opinion, the handbook became very expensive and lost its appeal overnight.

Now there's another source for the same great information.

One of South Bend Lathe's competitors in 1942 was Sheldon Machine Co of Chicago. Sheldon saw the value of South Bend's manual and apparently knew it had to publish its own. What resulted was a booklet every bit as good as South Bend's, if not better.

We've reprinted the Sheldon manual, and our edition sells at a fraction of South Bend's. Now you can get the same great information at a bargain price once again!

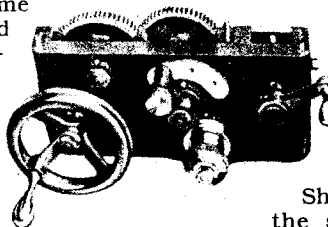
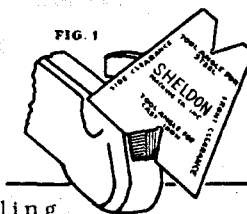
Chapters include: the modern back geared screw cutting lathe, the basic parts of a lathe, the theory of metal cutting, grinding cutter bits for lathe tools, uncrating and setting up a lathe, oiling the lathe, setting up lathe tools, setting up the work on centers, turning, facing,

knurling, thread cutting, drilling, boring, cutting off, and more. You get directions on mounting work in three and four jaw chucks, drilling and countersinking centers, "Running-In" the lathe, discussions of the variety of tool holders, use of collets, tool-post grinders and much more!

No doubt, every new Sheldon lathe shipped out included a copy of this little instruction manual. You may not own a Sheldon lathe, but the small Sheldon lathe was a generic machine very much like those of South Bend and a dozen other manufacturers. You'll find it useful no matter what lathe you use.

If you're just learning to use a lathe, this manual together with Fred Colvin's book, will certainly get you started. For every question these books answer, ten more questions will pop up, and that's when you start accumulating all the other books in this catalog!

Great book! Great illustrations! Great price! No lathe operator can afford NOT to have a copy of this. A gem of a handbook that should be beside every lathe. Order a copy today! 5 1/2 x 8 1/2 paperback 112 pages No. 21052 \$7.50

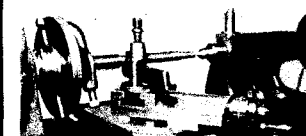


Dave Gingery Comments:

I've taken THE CARE AND OPERATION OF A LATHE to bed with me for the past few nights. I get lots of inquiries from people who have acquired older lathes. Obviously I can't afford to give my time to offering detailed answers even though I'd like to. Now all I have to do is to tell them to order this book.

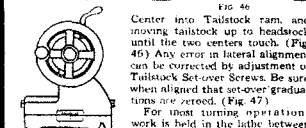
My advice would be to read the book entirely before even turning the machine on. You really should not play with a lathe until you know what is in the pages of this book. Then use it as a training guide as you familiarize yourself with the machine. It will tell you how it's made and how it works, how to set it up, lubricate it and run it safely. Best of all it gives great instruction on tool-grinding and every basic lathe operation. And it displays plenty of detail on accessories so that you can easily make many of your own if you can't justify buying them. It won't be long before you are an able machinist. I'm grateful that such a book is again available.

Setting Up The Work On Centers



A soft twist turned down with being held between centers and pressed up a little dog and face plate in the tool post is a valuable standard turning tool holder.

Before setting up work on centers be sure Spindle Center and Tailstock Center are in accurate alignment. This is done by inserting center collar and center into spindle nose, and inserting Tailstock



Center into Tailstock ram, and moving tailstock up to headstock until the two centers touch. (Fig. 46) Any error in lateral alignment can be corrected by adjustment of Tailstock Set-over Screws. Be sure when aligned that set-over graduations are zeroed. (Fig. 47)

For most turning operations work is held in the lathe between the lathe centers by means of holes drilled in each end of the stock to be machined. The accuracy of the machining is primarily dependent upon the accuracy with which these are located.

Meet Dave Gingery



One day Dave asked me if I was interested in offering his series of books on building machine tools from scrap for practically nothing. They're written for the guy who'd love to buy a lathe but is broke — in other words, most of us. He told me he had been building lathes for more than 20 years!

I said I was interested, but as usual, a little

skeptical. When I saw his books, I was amazed. And I'm still amazed.

Dave has proved that you can start with simple handtools and can build precision machine tools. First, you set up a simple foundry and pour castings to build a lathe. You then use the lathe to build the shaper which will cut the dovetails, T-slots, and gears for the milling machine. Next, you build the drill press. Finally, you can go back and build the accessories you need for your lathe and other tools: dividing head, screw-cutting gears, chucks, and lots more. A handy sheet metal brake is thrown in for good measure.

Dave is a magician! Give this guy a file, your aluminum storm door, and some charcoal, and he will turn it into precision machine tools! And he has shown thousands of others how to do it too!

As you build each machine, Dave teaches you new skills in foundry, mechanics, and machining. When you're done, you end up with a complete machine shop that you have built, you can use expertly, and you can repair should something go wrong. And best of all, you're a pretty darned good machinist.

I've never seen a series of books like this, and I don't think I ever will again. I may sound like a sideshow barker, but it's all true. Dave's books have become metal working classics. If you don't have a complete set yet, order those you're missing. Don't put it off.

PACKAGE

"BUILD YOUR OWN METALWORKING SHOP FROM SCRAP"

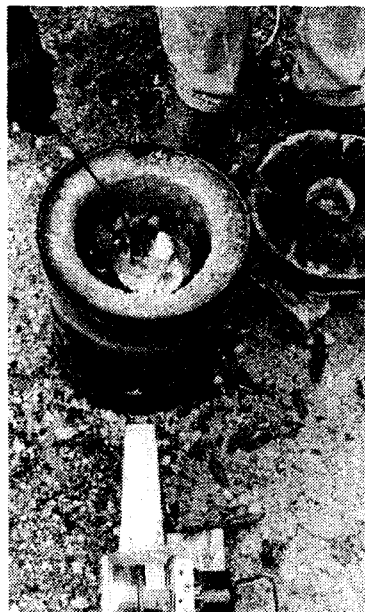
ALL SEVEN GINGERY BOOKS:

Build a Charcoal Foundry, Lathe, Shaper, Drill Press, Milling Machine, Deluxe Accessories and Sheet Metal Brake!

Save \$5.90

Cat. no. 929

\$52.75



MELT METAL!

CHARCOAL FOUNDRY

by Dave Gingery

You can melt aluminum, pot metal, and even brass with a very simple home built furnace fueled with grocery store charcoal. In a very few minutes you can melt beer cans, your wife's pots and pans, the siding off your neighbor's house, the pistons out of your car, and anything else you can beg, borrow, or steal. It costs very little to build, and it works incredible well.

All you need is an old metal 5-gallon pail, about \$6 worth of fireclay, some sand, a junk

Melt Aluminum with Grocery Store Charcoal!

auto heater fan with a coffee can shroud (or a vacuum cleaner), and this book to build a high temperature furnace. One man built the furnace itself for about \$7. The blower, cords, a pipe for a crucible, and the rest cost a few dollars more, but I can't imagine that the whole set up being more than \$25 - probably much less if you're a good alley picker.

Some sandbox sand and fireclay will do very well for making sand castings. And all you need are some 1x4's and a few nails to build a cope and drag to make your molds. You wouldn't believe how easy it is to build a complete foundry.

After making a pattern (something that takes some skill), I rammed up a sand mold and fired up the furnace. In went the crucible around which I placed about 75¢ worth of charcoal briquettes. Into the crucible went beverage cans, an old electric iron, and a couple of pistons. After skimming off the dross, I poured the 1400°F metal into the sand mold. About 20 minutes later, I had a face plate casting for a small lathe. Since then I've made lots more castings, and you can too.

This is the first book in

Gingery's series showing you how to build a complete metal working shop from scrap for almost nothing. You must have the foundry setup in order to build the lathe, milling machine and other tools described in each of the other books. Castings make strong and precise machine tool components. You'd go broke buying the castings, if they were available, but you can make them for almost nothing in your own foundry.



Building machine tools takes hours and hours, but building the charcoal foundry is far simpler, and loads of fun. You can make castings for any purpose. Almost anyone can build a furnace, and you will become "hooked" on melting metal once you try it.

The "Charcoal Foundry" is a small book worth every penny of its price and then some. Every page is loaded with practical how-to useful advice. You get many, many drawings and excellent photographs that will show you step-by-step how to build a foundry.

Highest recommendation! This is the book to get started with. Thousands already have! Top rate! Get a copy. 5 1/2 x 8 1/2 paperback 80 pages

No. 163

\$6.95

Build Dave Gingery's METAL LATHE!

BUILD A METAL LATHE

by Dave Gingery

Build a sturdy, precision metal cutting lathe for much less money than you'd pay for one of those "toy" lathes on the market. The only precision measuring equipment you need is a feeler gauge. You DON'T need any machine tools. In fact, Dave built the two prototypes for less than \$50 each just a few years ago!

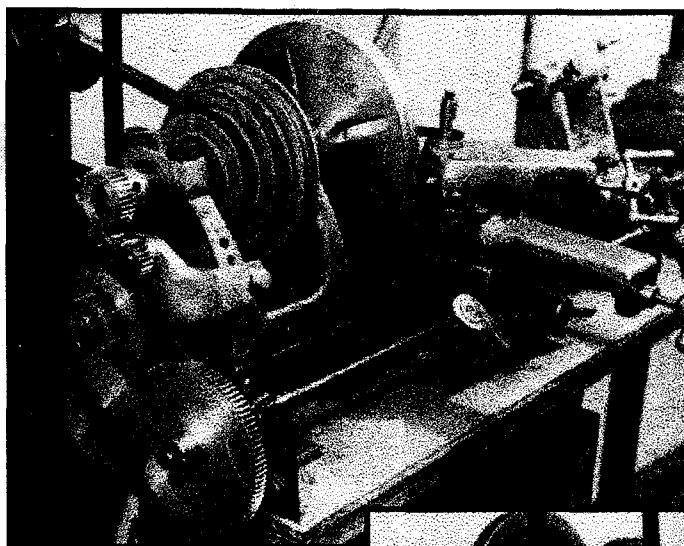
Your lathe will have a 7" swing over the bed, about 5" over the saddle, with 12" between centers. You can bore the headstock spindle and tailstock to No. 1 Morse taper if you wish. You can scale it up but you'll need larger castings than the charcoal foundry can provide.

I had a chance to use one of the prototypes. After a pass across an 8" long steel bar, my micrometer showed a taper of less than .001". Not bad for a \$50 homemade lathe!

**Large 7" capacity!
Precise to 1/1000"
No Precision Tools
Needed! Low Cost!**

Castings from your charcoal foundry are the secret of building a quality lathe. The only tools you need are an electric drill, files, and other handtools along with a very simple homemade disc grinder fully described in the book. A table saw is very handy for making patterns, but not absolutely essential.

You will use this simple

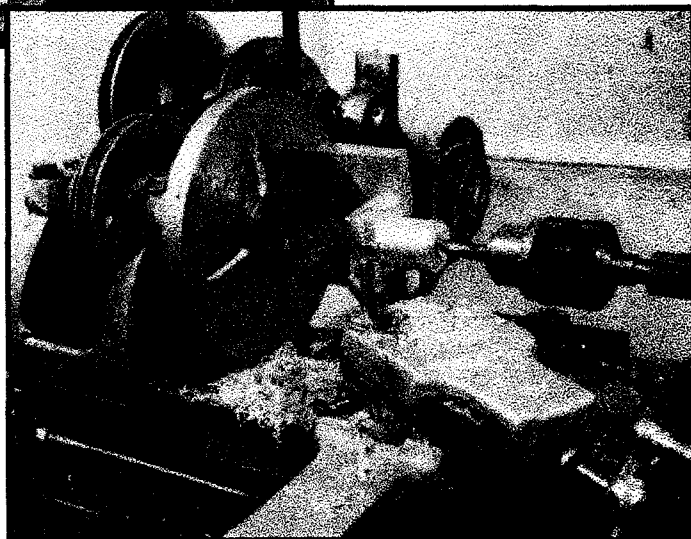


lathe to build the metal shaper, milling machine, drill press, and the fancy accessories. You get no chuck or screwcutting gears. Dave will show you how to build them an much more in the book on deluxe accessories. They make life easy, but Dave will prove that they're not absolutely essential.

Can't afford to buy a lathe? Then build one. It doesn't take much money, just lots of hours. And just think of the bragging you could do! Order a copy today! 5 1/2 x 8 1/2 paperback 128 pages heavily illustrated.

No. 177

\$8.95



Build Dave's Incredible Metal Shaper!

BUILD A METAL SHAPER

by Dave Gingery

You may have heard the shapers are obsolete. Say that to someone who owns one! I dare you!

Truth is, there is hardly a cheaper, quicker way to cut keyways, splines, gears, flat and angular surfaces, dovetail slides, irregular profiles and more. Most of this can be done on a milling machine, but often the milling machine must use an expensive cutter. A shaper, for instance, can use a 50¢ piece of tool steel to cut gears. Forget the expensive cutters.

You can build an excellent metal shaper with a 6" maximum stroke and a mean capacity of 5" by 5". The tool head

rotates through 180 degrees for angular cuts, and features a graduated collar with a simple lock. The down feed has a graduated collar, and the exact stroke length can be set. Your shaper will have variable speed, automatic variable cross feed and adjustable stroke length. It will be a machine worth bragging about.

You get all the pattern plans, all the secrets, and all the details. You'll need the

charcoal foundry and Gingery's metal lathe or its

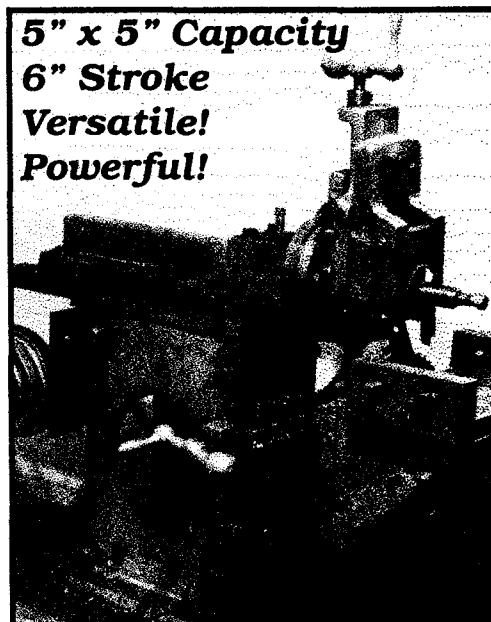
equivalent. Like Gingery's other books, this one is jam-packed how-to. Great book! Order a copy of this classic!

5 1/2 x 8 1/2 paperback 144 pages heavily illustrated

No. 187

\$8.95

**5" x 5" Capacity
6" Stroke
Versatile!
Powerful!**



Build Dave's Precision Milling Machine

Rigid! Powerful! Far better than "toy" milling machines! And YOU build it!

MILLING MACHINE

by Dave Gingery

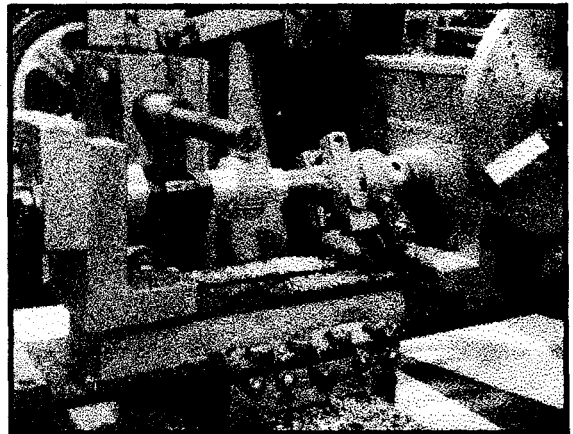
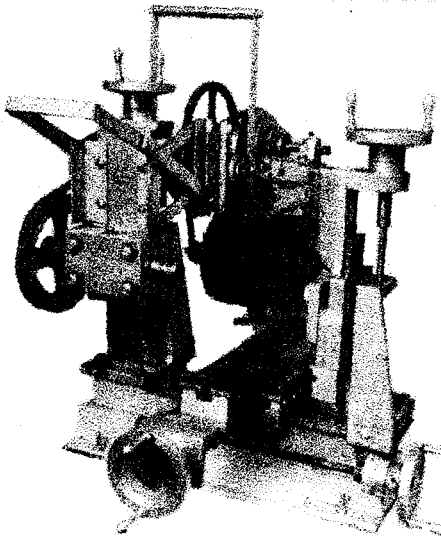
Dave can tell the story best:

"It's a horizontal miller, but it has the full range of vertical mill capability when used with the angle plate on the work table. Home shops will find a horizontal mill and a shaper to be not so nearly obsolete as the "experts" say, and even the smallest shop would soon outgrow one of those little toy vertical mills.

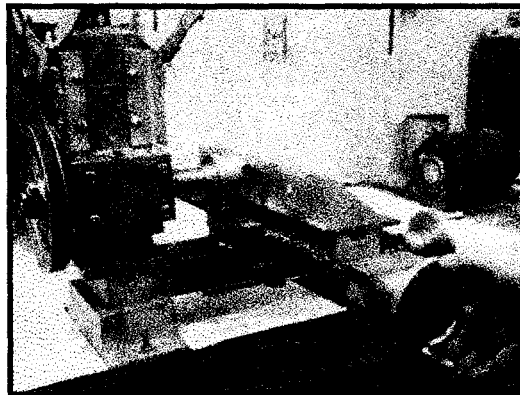
The work table 2 3/8" x 12" with a 3/8" T-slot, and it travels a full 12". The carriage travels 6 1/2" with the tail stand in use, and 8 1/2" with it cleared away.

It took over a month to design the transmission, and it works beautifully! Eight speeds ranging from 43 rpm to over 2430 rpm. I know of no other small miller except the Dore-Westbury that has such a range. . . The highest speed in the low range is 270 rpm, and it made a .035" cut in the end of the compound with the face mill set at a 3" diameter at that speed with no squawk or chatter.

I made the cutter on the lathe, but the miller is designed to make its own cutters for nearly every purpose. This cutter adjusts from 2 1/2" to 4 1/2". It's an aluminum casting, and it was cast with a steel core to leave the slot for the cutter bit. It shows no sign of failure after planing off the end of the compound. The set screws didn't loosen, and the casting wasn't strained in the least amount. That's



(above) cutting a gear using indexing head described in Deluxe Accessories book (below left) facing an angle plate with a fly cutter



after several passes over a sandwich of 1/4" steel top and bottom, and an inch of aluminum between.

Anything is possible. It can make jigs or fixtures that are needed for any kind of work. It can make any type of style of cutter. You could even machine a blank or a Brown & Sharpe gear cutter, mill the lands, and grind the cutter right on the miller.

I'm really excited about this machine. It's much more than I thought possible when I began."

Build yourself a milling machine! Order a copy of this. It's worth twice the price. 5 1/2 x 8 1/2 paperback 160 pages No. 1128 \$8.95

Build Gingery's "Killer" Drill Press!

Powerful, Precise, Inexpensive!

YOU can build one!

THE DRILL PRESS

by Dave Gingery

Build a professional quality drill press! It's a beauty! Dave describes it:

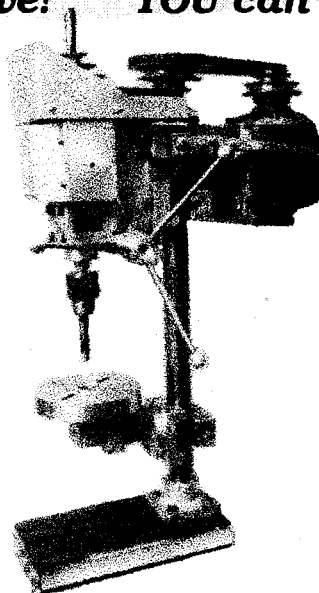
"I can't believe the capability of this machine. I put a 5/8" bit in the chuck, and it drilled through a 1/4" steel channel without a pilot hole. My wife said it looked like it was cutting cheese instead of steel.

Note the double reduction that gives a low speed of 260 rpm. That's why it can drill large holes in steel. I'm certain it can drill a 3/4" hole, and it may be capable of drilling up to a 1" in steel. I don't have a larger bit to test. All of the small drill presses that I've seen have a low speed around 700 rpm. That means they only have a capacity of 3/8" in steel, even if

they do have 1/2" chuck.

The spindle is mounted in ball bearings, and so is the countershaft for the double reduction. The driven pulley is mounted on a hollow shaft, supported by its own 1" ball bearings to run concentric with the spindle. No belt tension is transferred to the spindle.

The quill feed is 2 1/2", and it can be made longer. The quill is advanced by a unique cable winch mechanism. This is only a 1/16" cable, though it had ample strength to feed the 5/8" bit to produce a closely curled chip. It has provisions to adjust tension and backlash, which is very important for sensitive drilling with small bits at high speed.



The machine in the manual is a 12". It can easily be scaled down about a third or smaller, and it can be scaled up to a hefty floor model with ease. None of the castings used the full one quart charcoal foundry capacity, and all of them were machined on the homemade lathe. Only the spline on the spindle was done on the miller."

Sure, you can buy a drill press. But you'll pay an arm and a leg for one that can match this performance. Building this one is worth the effort. Great book! Order a copy and get started. 5 1/2 x 8 1/2 paperback 128 pages illustrated No. 1133 \$8.95

CUTTING GEARS!

GEAR CUTTING PRACTICE

by Colvin & Stanley
reprinted by Lindsay Publications

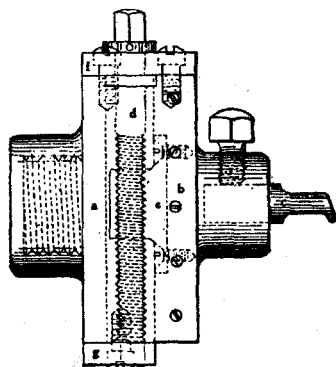
The high gods of the machine shop, Mr. Colvin and Mr. Stanley, will teach you how to cut gears in this reprint of their 1937 text, subtitled "Methods for Producing Gears for Commercial Use."

Chapters include gear cutting practice, spur gears and circular cutters, shaping method of cutting gears, helical and herringbone gears, hobs and cutters, bevel gears, worms and worm gears, internal gears, heat treatment, burnishing, shaving, lapping and grinding gear teeth and more!



This book was written for industry so there will be a lot of material you can't use. But it's better to get too much info rather than not enough. You'll get an education in gear geometry, the best alloy compositions to use for gears (in 1937), specs on keyways, using the dividing head, comparison of hobbing versus milling gear teeth, commercial hobbing machines available, vertical shapers designed for cutting gears, details on hobs, their use and sharpening and on and on.

You get charts, tables, nomographs, photographs, drawings, and more. It's heavily illustrated. Again, you'll see a lot of big machinery since this is an industry text. If you cut gears or ever intend to, this reference will teach you something practical even if you only have a 3" lathe with a milling attachment. A standard work by the standard dynamic machines shop duo: Colvin & Stanley. Get a copy! 5 1/2 x 8 1/2 paperback 344 pages No. 20889 \$14.95



Colvin & Stanley's

MILLING MACHINE KINKS!

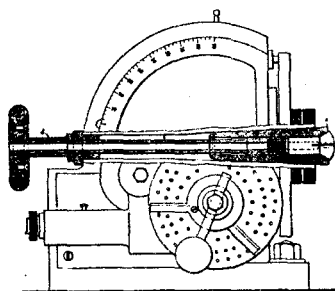
MILLING MACHINE KINKS

by Colvin & Stanley

The "dynamic duo" were always writing something. No, no, no! NOT Batman & Robin, knucklehead! I mean Colvin & Stanley! Here's one for the 1908 milling machine operator.

Hints & Tips from the "Dynamic Duo"

You get articles reprinted from American Machinist magazine including milling machine feeds and speeds, how to mill a heart shaped cam, cutting racks on the milling machine, accuracy in jig and fixture work on the miller, indicators applied to mill-



ing machines, testing mill cutter arbors, fixtures for cutting bevel gears on the miller, boring toolholders for the milling machine, a fixture for milling taps, reamers, and more.

This is a small book loaded with practical information and excellent illustrations that was aimed squarely at the professional machinist. Useful. Loaded with ideas that could probably be adapted to many other problems. Get a copy. 4x6 paperback 99 pages

No. 1313

\$4.95

BUILD DELUXE MACHINE SHOP ACCESSORIES!

Indexing Head • Face Plate • Steady Rest • Change Gears • Mandrels • Chucks • More!

DIVIDING HEAD & DELUXE ACCESSORIES

by Dave Gingery

Now that you've built the lathe, shaper, milling machine, and the drill press at almost zero cost, it's time to build the fancy accessories.

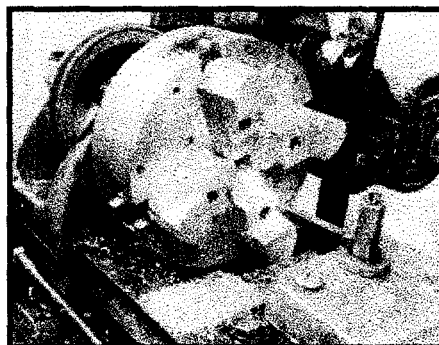
Chapter one covers "Tooling Up." You get a list of supply sources and helpful books, a review of basic tooling, and a series of simple lathes tools: compact clamp dog, heavy faceplate, homemade hand reamers, a set screw chucks, expanding and threaded mandrels for facing gear blanks and for cutting teeth, plus

standard 40 tooth worm gear, providing all divisions through 50 and all even and multiples of 5 through 100. Many other divisions up to 1960 are possible, and it's easy to make a special plate for an unusual job. You'll be shown how it works, why it's so accurate, and how to build it and use it. The directions for drilling the fraction plates are especially valuable because they can be adapted to building a variety of other indexing fixtures.

Next, you'll cut professional quality change gears to add screwcutting capability to your

homemade lathe. It's easy to machine the blanks to correct size and mill the tooth spaces. Dave will show you how to make gear cutters for about 50¢ each!

Finally, you'll be shown how to install these gears. A conven-



a simple fixture for tapping truly perpendicular holes by hand.

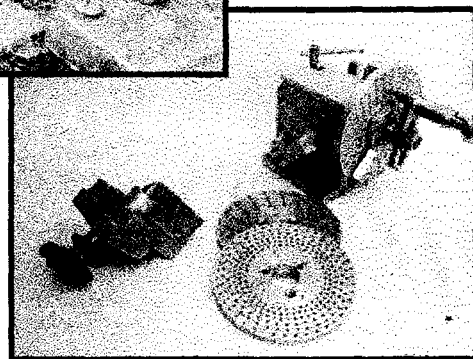
The second chapter will show you how to build a simple two-jaw chuck that can be self-centering for repetitive work and a four jaw chuck with independent reversible jaws. Like Dave says, "You'll be glad you didn't blow your bait and beer money on a chuck when you see how easy it is to build one."

Next, you'll build a steady rest. This almost-essential accessory expands the capacity of the lathe for work that is too long to be mounted between centers. It's worth many times its small cost.

Then, you'll build the dividing head that serves as a rotary table, too. Few home shops have such an accessory, but you will. This beauty is built around a

tional tumbler plate provides left hand thread cutting, while the basic set of gears cuts all threads of standard inch sizes from 8 to 80 tpi. A fine feed range from .0025" per revolution to .005" is also provided. You even get a threading indicator for the carriage so that you can engage the split nut at the proper moment. It really is easy to add change gears once you know how, and Dave will show you everything.

Incredible quality! Rare how-to! Order a copy today. 5 1/2 x 8 1/2 paperback 159 pages No. 1153 \$8.95



Build Dave Gingery's

CENTRIFUGAL FANS

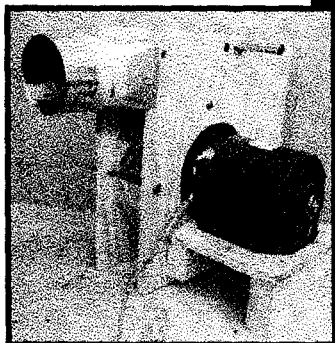
Build powerful blowers to drive furnaces, to remove dust, to keep the flies off your inlaws...

HOW TO DESIGN & BUILD CENTRIFUGAL FANS

by Dave Gingery

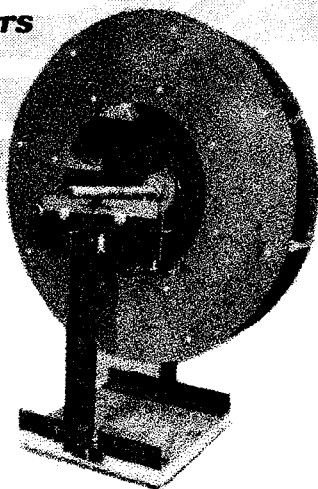
There are low-cost centrifugal fans available, but rarely will they do exactly what you want them to. If you're building a small furnace to melt aluminum, you can use a surplus fan. If you're going to build a brass or cast iron foundry, you'll probably need more pressure than a make-shift fan can provide. If you're going to build a dust collection system for woodworking tools, a welding booth, or a grinding wheel, you'll find that the blowers you need are not available at low cost.

Dave will show you how to design a fan with simple math that will provide the volume and pressure you need for the system you're building. With a pocket calculator you can figure the dimensions of the fan, the size of motor needed to drive it, and predict performance.

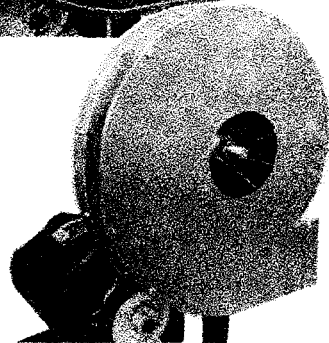
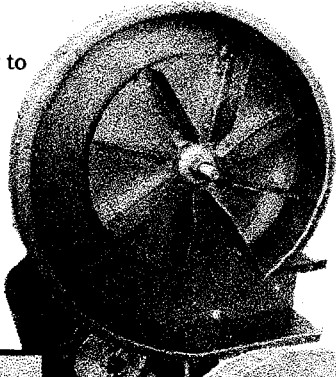


You'll be shown how to use pillow blocks, shafting, plywood, sheet metal and other common materials to build a dirt cheap blower that outperforms any make-do blower you might find on the surplus market.

Dave will also show you how to build a simple manometer and pitot tube. You can actually measure performance and fine tune your air system. Dave used this equipment to build and adjust a powerful

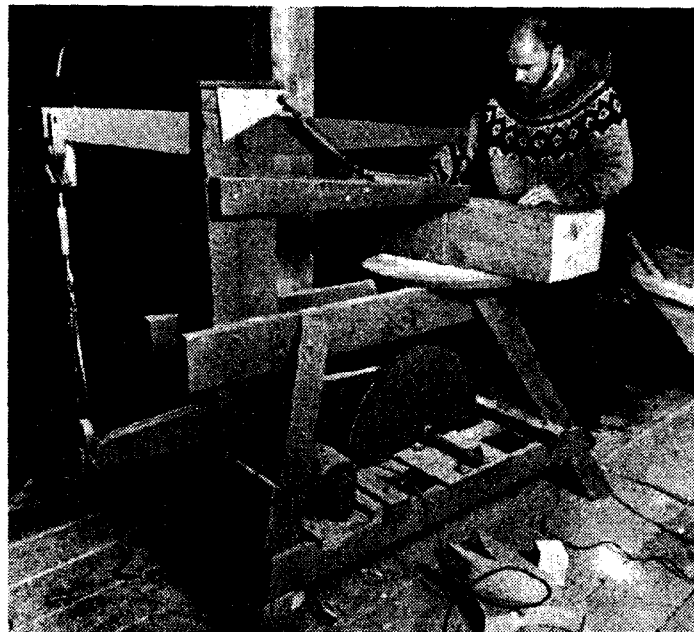


(above) balancing a fan wheel
(below) interior of homebuilt fan
(bottom) same fan sealed in sheet metal housing (below left) simple plywood fan housing



gas burner for his iron-melting crucible furnace.

Learn how to build a dust precipitating cyclone, design sheet metal transition pieces (a very valuable skill), balance a dust collection system, build a static balancing stand, and more. Gingery's brand of simplified do-it-yourself knowledge is not available anywhere else. Top rate. Order a copy. 5 1/2 x 8 1/2 paperback 112 pages No. 4600 \$9.95



Build These Machines!

MAKING AND MODIFYING MACHINES

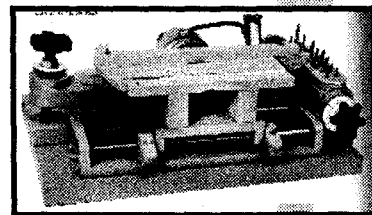
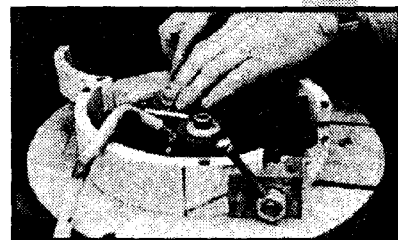
articles from *Fine Woodworking Magazine*

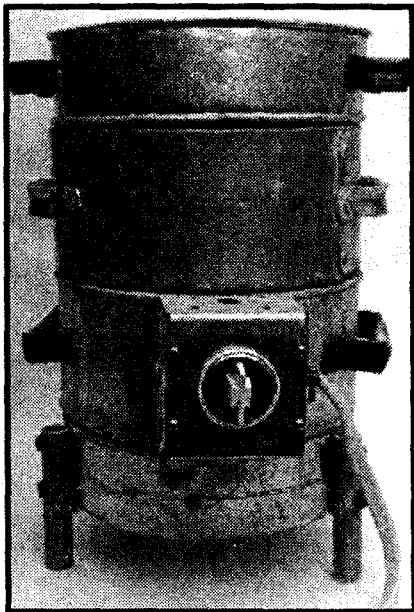
You get reprints of 29 different articles on making and adapting machines for woodworking. It's great! And with a little imagination, you can take the ideas here and adapt them to metal working machines in some cases.

Articles include chainsaw lumbermaking, a wooden table saw, shop-built panel saw, shop-built sliding table, building a walking-beam saw, treadle band saw, radial saw meets computer, wooden jointer, a sanding-disc jointer, a low-tech thickness sander, an abrasive planer, a disc sander, inflatable drum sander, wooden-drum stroke sander, a swing-away drill-press table, an oscillating spindle sander, making shaper knives, shaper cutters and fences, custom shapers for period moldings, horizontal boring machine, making a router table, the router rail, miniatures by machine, shop-built sharpener, treadle lathe, freewheel lathe drive, a shop-made bowl lathe and others.

You get great ideas, plans, and operating tips. I like the conversion of a garbage disposal into a water-cooled grinder for sharpening wood chisels. Could that be adapted to grind lathe tools and millers? The wooden jointer and table saw are certainly nothing the laugh at. And the treadle wood lathe is a beauty, although I doubt you'll ever adapt it to cut a 5/8-11 left hand thread!

Excellent book. Yes, it's woodworking, but any do-it-yourself machine freak should find it interesting and useful. That's you, isn't it? Well, then order a copy. Lot's of plans for a very reasonable cost. Get one. 5 1/2 x 8 1/2 paperback 140 pages No. 1338 \$9.95





Build a Li'l Bertha

*(Dave Gingery's 1800°
Possum Cooker!
Melts Metal, too...)*

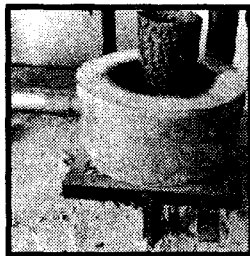
"LIL BERTHA" ELECTRIC FURNACE by Dave Gingery

Let Dave show you how to melt aluminum and brass with electricity! If you have good ventilation and are careful, you can melt indoors, rain or shine. Electricity isn't cheap, but it's no more expensive than charcoal, and it's right there in the wall — all you need. Best of all, you can dial up the heat you need on thermostat, put the metal in the crucible, and go ram up your molds. After the metal melts, it will sit there at pouring temperature until you're ready. The furnace will practically watch itself.

You can build this high performance electric furnace that runs at 1800° practically forever for very little money. And it's surprisingly easy.

Not only that, you can use Lil' Bertha to calcine investment molds, carburize and heat treat metal, forge, temper, anneal, enamel, fire ceramics, and many other tasks. If you go to the trouble of getting the harder-to-find high temperature electric element, you can fire at 2300° for extended periods, making this furnace ideal for melting brass!

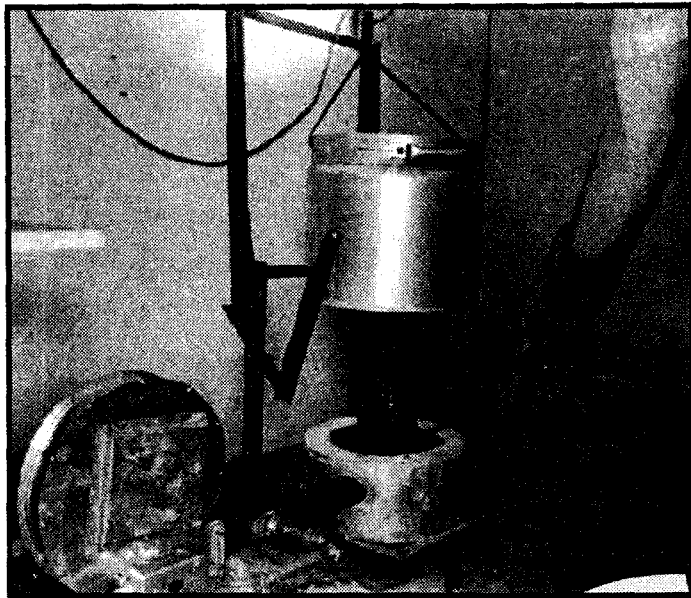
Dave will show you how to size the furnace to fit your needs, where to get and how to handle crucibles, make the electrical calculations, and more. This is typical Gingery material — top rate wall-to-wall how-to. Order a copy. 5 1/2 x 8 1/2 paperback 67 pages. No. 4163 \$8.95



BUILDING A GAS-FIRED CRUCIBLE FURNACE

by Dave Gingery

Dave says beginners should "cut their teeth" melting and casting aluminum before trying "hot stuff." An excellent simple, low-cost furnace for this is the charcoal furnace described in one of Dave's earlier books.



Melt Cast Iron in a Gas-Fired Crucible Furnace!

Fast, safe melts with easy-to-build gas furnace!

Once experienced, you'll want to pour larger quantities of aluminum than the charcoal foundry can provide, alloys with higher melting points such as brass, and eventually cast iron. You'll also want to use a more convenient and lower-cost fuel. The gas-fired crucible furnace is exactly what you need.

Here you can melt up to 20 pounds of cast iron in a crucible. When the melt is ready to pour, both the top and body of furnace raise up so that you can grasp the white hot crucible from the sides making the crucible easier and safer to control than if you had to use tongs to lift the crucible straight up as is done with other furnaces.

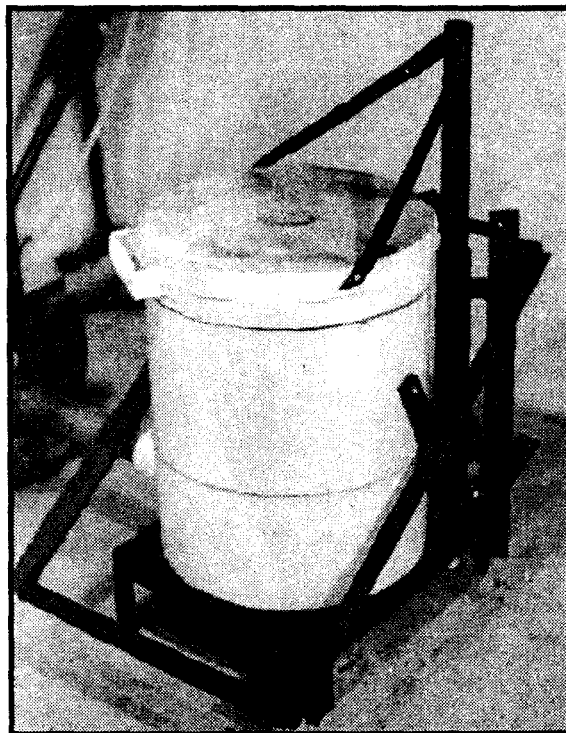
Although charcoal is widely available, it is messy and somewhat expensive. Gas is low-cost and clean, but requires a more complicated burner. Dave will show you all the tricks, including how to build the centrifugal blower, so that you get a hot, efficient and quiet gas burner.

You get wall-to-wall how-to — the detailed information that Dave is famous for. Six chapters cover basic design, building the furnace body, building the frame, building the burner, crucible and tongs, and operating the furnace. You get photographs, drawings and proven techniques.

You get the standard Gingery quality. Full tilt! Complete! Detailed! Excellent! You can pour your own cast iron castings, quickly and safely adding a whole new dimension to your machine shop. Get a copy of this. Highest recommendation! 5 1/2 x 8 1/2 softcover 108 pages

Cat. no. 1281

\$9.95



Fabricate Auto Body Parts with an ENGLISH WHEEL!

THE ENGLISH WHEEL BOOK

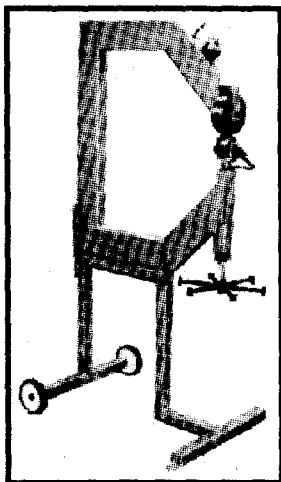
by David L. Anderson

In his introduction the author explains his book better than I can:

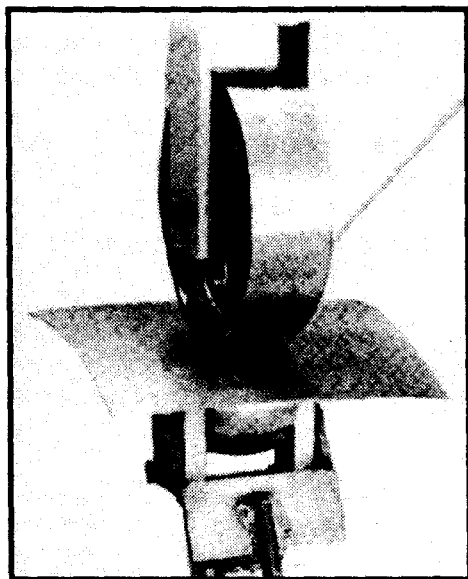
"The English Wheel, sometimes called the wheeling machine, is a simple non-powered machine for forming a large radius bends in sheetmetal. It can form simple bends or compound shapes, i.e. domed or crowned panels. It was apparently developed in England at about the turn of the century by 'panel beaters' who were in need of more rapid and repeatable method of forming complex shapes in sheetmetal..."

In my own activities as a hobbyist, I have done quite a bit of [auto] body repair and restoration. I have had my English Wheel built for most of a year now and have found it to be simple to use, effective in forming low crown panels, and much reduces the time needed to make usable patch panels. I would not begin to say that I am an expert, or that I could now construct a complete [auto] body from scratch, but I can certainly say that the machine is worth the time and effort I put into making it.

I have attempted not only to provide complete plans for four different size English Wheels, but also to provide information on how to tailor the design to permit substitutions of materials and/or to confidently build a different size machine. The design calculations are also provided to allow the reader to assure himself that the designs given will work prior to committing the time and money involved in building an English Wheel.



I have assumed that anyone far enough along in the hobby to consider having an English Wheel would already have a basic set of skills and equipment. The minimum that I have in mind are some means of cutting stock steel (cutting torch/grinder or powered metal cutting saw), arc welding equipment, and drilling/tapping capability. Optionally, a milling machine for preparing the lower wheel slide (an optional non-



machined method is also given) and a lathe for preparing the wheels would be nice. Otherwise wheels can be purchased complete for the machining jobbed out to a machine shop..."

You get drawings, photos, formulas and several large sheets of plans that will allow you to build this unusual sheet metal machine. This is quite unusual! A rare machine, and rare plans. Worth having. 8 1/2 x 11 paperback 40 pages with 4 plan sheets
No. 1336 \$19.00

How to Build a SLIP ROLL

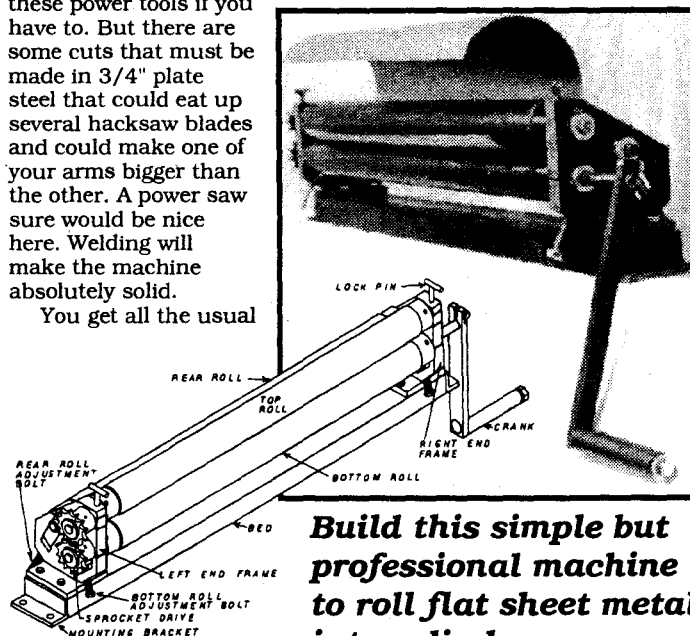
HOW TO BUILD A SLIP ROLL MACHINE

by Vincent R Gingery

Build yourself a simple device comprised of three 1 1/2" steel rolls that will bend flat sheet metal into smooth curves to form cylinders of various diameter. Vince writes in the introduction "The two front rolls grip the sheet metal and force it against the rear roll, which forces the material up and around the top front roll curving the sheet and forming the cylinder."

The base is made from 3" x 1 1/2" channel. The rolls are 24" lengths of 1 1/2" common black pipe. A drill press, bandsaw and welder were used to quickly build this beaut. You can probably find ways around using these power tools if you have to. But there are some cuts that must be made in 3/4" plate steel that could eat up several hacksaw blades and could make one of your arms bigger than the other. A power saw sure would be nice here. Welding will make the machine absolutely solid.

You get all the usual



Build this simple but professional machine to roll flat sheet metal into cylinders....

detailed drawings and all the "hand-holding" how-to you've come to expect from the father-son Gingery team. This is a quality how-to manual showing you how the build a machine that would cost hundreds of dollars commercially.

Vince will even give you a couple of simple lessons in rolling up a straight and tapered (cone-shaped) cylinder. There's not much to learn. The machine does it all.

Great machine. Great manual. If you check out the illustrations here, and I think you'll want a copy for your library, even if only for future reference. Order a copy today! 8 1/2 x 11 stapled spine booklet 40 pages
No. 1335 \$9.95

WANT TO STAY ON THE MAILING LIST?

Because of the enormous expense of printing and mailing catalogs, we are forced to mail catalogs to only those people who are interested in receiving them. The best and only sure-fire way you can be assured of getting future catalogs is to order books. And that makes sense. If you can't find at least ONE book in this catalog that interests you enough to order, then there's little reason to continue sending catalogs. So order today and we'll send catalogs!

Dave Gingery Works Sheet Metal!

You can do amazing work with the simplest tools.

Dave will show you how!

WORKING SHEET METAL

by Dave Gingery

There are many sheet metal books available, but most of them talk about the techniques of laying out heating and air-conditioning duct work and transition pieces and little else. That's important, but Dave is more interested in the sheet metal work we have to do in our home shop. Other books also assume you have expensive equipment to work with. Dave starts with a hammer and tree stump.

You get a quick lesson in basic sheet metal work as only craftsman Dave can teach it. He'll show you how to build a sturdy workbench and equip it with a simple bar clamp that will allow you to do all kind of fancy things you would have never believed. A bench bar will increase your abilities, too.

Then you'll learn all the basics such as cutting sheet metal and sinking using a block made from a tree stump. Learn about joining and edging - the flat lap, pipe lap, corner lap, double corner lap, pocket seams, Pittsburgh seams, the grooved seam and more. He'll show you how to build a simple hand groover tool and a hand folder. You can do tab seams, double lock seams and more. Make a flange starting tool. Learn how to raise a flange on a disc and a cylinder. Dave will show you wire edging and other edge treatments.

Chapter 4 reveals patterns and layout.

This can be confusing until you see it, and then you never forget it. And Dave can show you how its done - simply. This stuff is important if you're going to build tool boxes, trays, flues for a blast furnace, a pitcher with a flared top, and so on. And yes, he'll show you to layout a complex transition piece from rectangular flue to a circular one.

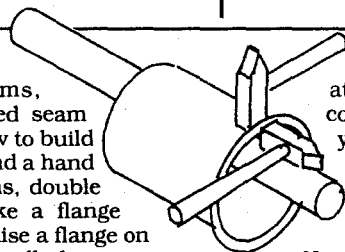
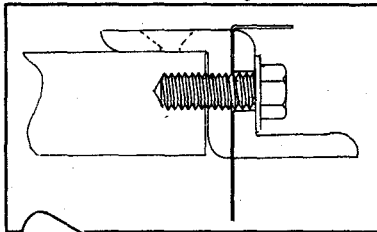
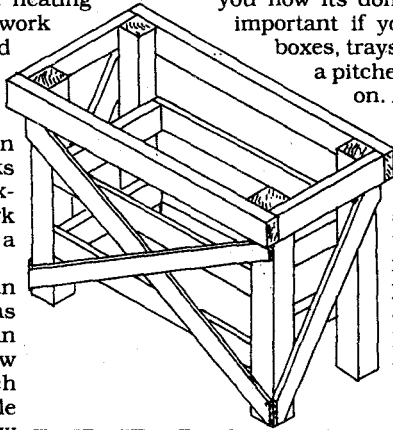
In the final chapters Dave shows, as an example, how to fabricate a replacement for a gas tank. He'll show you how to redesign it so as to make it as simple as possible. You'll learn what seams to use so they take solder easily.

This is not the be-all and end-all of sheet metal books. Dave will tell you that. But if you're as ignorant of sheet metal work as I am, this is the place to start. The price is right, and there is NO doubt that the author knows what he's talking about.

This is another Dave Gingery book. Look at his other books. Do I need comment on the content? Do you really need to wonder if it's worth ordering. We've got a copy waiting for you. Just say the word. 5 1/2 x 8 1/2 paperback 90 pages

No. 1334

\$7.95



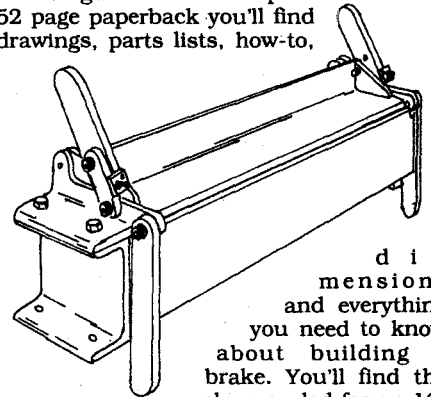
Build Gingery's Sheet Metal Brake

SHEET METAL BRAKE

by Dave Gingery

Build a brake and turn sheet metal into ducts, flashing for your house, boxes for tools and supplies - you name it. Dave told me he has built many brakes over the years some of which are still being used in industry.

You get far more than plans. Inside this 52 page paperback you'll find drawings, parts lists, how-to,



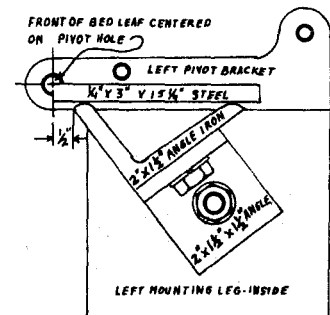
dimensions and everything you need to know about building a brake. You'll find the plans scaled for an 18"

wide machine, but you will also learn how people have been scaled it up to much greater widths. Dave will even show you how to use the brake to make common joints and bends. You'll need an arc welder to lay a few beads.

People have written to say "that's my kind of book." And they're right. Dave takes you by the hand and shows you construction step-by-step, pointing what is and is not important in the design of the brake. You don't often see good plans for a brake, let alone good ones. So order a copy! 52 pages 6 x 9 paperback

No. 161

\$6.95



Dave Explains What This Book is All About...

This book was inspired when someone gave a friend of mine a furnace. Local sheet-metal people all wanted \$1000 or more to install it. My friend is almost as stingy and tight-fisted as you and I so he didn't go that route. Instead, I picked up a couple of sheets of galvanized metal, a couple of joints of prefab duct and fist full of "S" slips and drives and we did the job in a half day for less than \$75.00. The moral of the story is that we didn't have any of the vital equipment for the job but we did it any way. That's what this book is about.

No photos of exotic equipment in these pages. And no instruction in using press-brakes, leaf brakes, slip-rolls, bar-folders, turning machines, edgers, crimpers, lockformers or any of the commercially built equipment found in commercial shops. Others have written more than enough to teach you how to do it with machines. Instead, this

book shows you how to do the work without machines.

Sheet metal work was my second trade and I worked for years with all the above mentioned machines and more. And I certainly agree that they are a wonderful convenience. But if you can't work them every day and earn plenty with them they are simply not affordable. Yet without the equipment, you are really in a bind if you need any item in sheet metal that is not mass produced. So here I am showing how to produce what you need without the machines, and there is hardly a limit to what can be made.

The chapter on layout is brief but it covers all the basics. It would be no trouble at all to write 500 pages on pattern problems and examples alone. But that has been done very well by many in the past. My message is that the principles are few and simple.

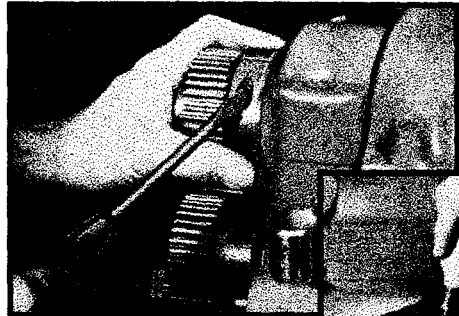
"I built a sheet metal brake using Dave Gingery's book and am extremely happy with the results. I scaled it up to twice the size and added truss bars and a modification to the bending leaf that allows me to form right-angle ribs. I have about \$100 in it and it is far superior to the \$300 'home shop' units I have seen. They have screw-down holders for the clamping leaf, but the toggle levers on Dave's machine make any job ten times easier & faster! Thanks a million for the great books that you publish."

-Bernie Kuschel

KEEP YOUR LATHE IN TRIM

by South Bend Lathe Works
reprinted by Lindsay Publications

The Technical Service Department of South Bend Lathe Works published this, the fourth (and I think the most useful) of four booklets on caring for a lathe in 1943. The copyrights have now



expired, so we reprinted it. I have no idea if such a booklet is still being published.

You'll learn how to "make all necessary adjustments, check power supply, protect lathe from abuse, and keep lathe in best operating condition."

Although more than fifty years old, you'll find not all that much has changed. Some lathes use a flat belt



Keep Your Lathe In Trim!

drive from the electric motor. As a result you'll learn how to splice belts and adjust the drive. You'll see how to test a small spindle bearing for clearance and how to adjust the bearing. And you get tips on the saddle gibs, the graduated collars, the tailstock top set-over, and more.

This certainly won't tell you how to rebuild a lathe, but it WILL show you how to do the routine adjustments necessary to keep a lathe operating like new. Great little booklet. Worth having, as a collectible if nothing else! Get one. 5 1/2 x 8 1/2 booklet 28 pages No. 21389 \$3.95

Turning Metal on a Simple Lathe

by John F. Maloy

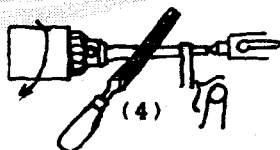
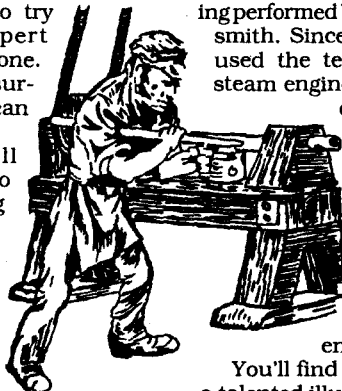
Turning metal is easy on a modern, expensive metal lathe. Anyone can do it. But have you tried turning metal on a simple lathe such as a wood lathe?

Who would be crazy enough to try that? An expert blacksmith for one. And you'd be surprised at what can be done.

Maloy will show you how to make a cutting tool, temper it with a propane torch, sharpen it, make the first pass, the second pass, finish it up, cut high carbon steel, and make additional gravers.

Illustrated but less well described are constructions of a bell chuck and a face plate.

Maloy explains: "The only qualifications that I have is 19 years of general blacksmithing experiences and a terminal case of tinkering." He's made flintlock rifles, tools, and irons, and much



more. He first saw freehand turning performed by an expert blacksmith. Since then, Maloy has used the technique to make steam engines, small airplane engines, and a muzzle loading barrel rifling machine. He has also managed to bore a hole 44" deep free hand that was off center by only .010" at the opposite end!

You'll find that Maloy is also a talented illustrator. You'll find a series of drawings (no text) showing how he turned the finned cylinder for a 3/4" pipe tee engine.

Get a copy. This is information that you don't often find. I think you'll be surprised by the accuracy possible! Good reading. 5 1/2 x 8 1/2 booklet 24 pages.

No. 884

\$4.00

Reading Lathe

THE READING LATHE

by Philip H. Dixon

Here's a book you won't find in your local bookstore. It comes from England, and is difficult to find even there. Through a special purchase with a partner we were able to scoop up a healthy quantity of surplus books before they went to a landfill. We'll distribute what we can to lathe enthusiasts like you and then put the remainder, if there are any, in our local landfill. If you want a copy, get it now. This is no longer printed.

Essentially, this is a study of the history of the lathe as it was

woods used and more.

So why should I be interested in an old bowl-turning wood lathe? You may think you're a hot-shot just because you face off an aluminum casting with your store-bought lathe. Can you lash together some timbers into a primitive lathe and turn a hardwood blank into a beautiful bowl? The point is, that although this is very primitive, some of the most beautiful turning work ever done came from craftsman using simple tools. Before you can consider yourself a true craftsman, you must retrace the steps of these early turners. This simple, inexpensive book could open up a whole new adventure to you.

Consider this. We've got a bunch in the warehouse, but once they're gone, they're gone. Cheap! Get one while you can! 6x8 paperback 95 pages No. 1360 \$4.95



New!

SPECIAL OFFER

If you order more than \$30 worth of books (total before adding shipping and handling), you can specify this number and the book will cost

you only \$1. Consider it a special bonus.

No. 1361

\$1.00

used for bowl turning in central England near Reading (about 30-40 minutes west of London by train). This is not so much how-to as documentation of early lathe use before the industrial revolution. The subtitle reads, "A link with the Anglo-Saxon Migration", so you know we're going back before Maudslay.

Chapters include the Bucklebury bowl turners, turning on reciprocating lathes, bowl turning from Anglo-Saxon times, economics of Bucklebury bowl turning, and the Reading lathe in perspective.

You get 34 illustrations showing early lathes and their use in turning bowls. You get discussions of the production rates, how the lathes were used, the



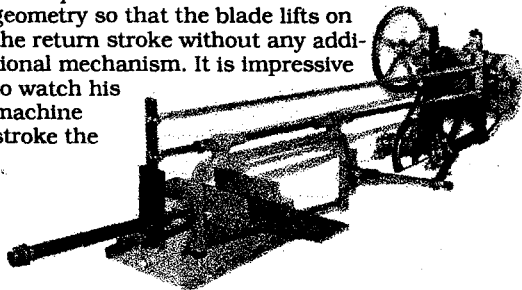
SAVE YER ARM!

BUILD A POWER HACKSAW WITH VISE

by Vincent Gingery

Dave Gingery's son, Vince, is a talented machinist in his own right. And Dave has taught him the secrets of how to turn out a high-quality construction manual. So save your arm. Get a copy of this, and build a power hacksaw.

Dave wrote me some time back, "I built a number of power hacksaws about 20 years ago. All of them worked after a fashion but none really well. Vince has demonstrated that a reduction belt drive is adequate. And he has somehow worked out the geometry so that the blade lifts on the return stroke without any additional mechanism. It is impressive to watch his machine stroke the



Build Vince Gingery's POWER HACKSAW

blade smoothly through a slab of steel. And it does it accurately and in good time too."

From the introduction: "The hacksaw machine described in this manual is simply a power driven hacksaw frame. This particular machine uses a crank and connecting rod driven by an electric motor..."

The cutting is done on the return stroke because as the crank moves in a downward direction, it has a tendency pull the saw blade down against the work. As the crank moves in an upward direction it pushes the saw up and away from the work allowing for smooth and simple operation...

The saw presented in this manual is light and weighs just a little over 50 pounds. Often times I need to cut material that is 20 feet long. In the past it had not only been a problem cutting this material by hand, but it had also been a problem of trying to fit this material in the garage... Now all I have to do is set my portable hacksaw outside the garage door, set it on the ground, clamp the material in the vise, and let the saw do its work."

This is a 60 strokes-per-minute machine that uses a 14 tpi blade that will cut a 1/4" x 3" flat bar in a couple of minutes. You'll need a 1/3 hp 1725 motor. Standard pulleys, belts and pillow blocks reduce the drive to 278 rpm. The only special equipment necessary is a 100 amp welder. All holes are drilled and tapped, so a drill press would be a great help, although not essential.

This is a Gingery-quality manual. You won't find better how-to anywhere. And this is a proven machine. Build one! Your Gingery plan collection won't be complete without this manual, too. Order a copy. 8 1/2 x 11 paperback 66 pages No. 1312

\$8.95

Build Dave Gingery's

TWO CYLINDER STIRLING ENGINE

BUILD A TWO CYLINDER STIRLING CYCLE ENGINE

by Dave Gingery

Fire up the foundry and the lathe! Dave has a super project for you!

Dave's official description reads like this:

"There is no metalworking project that will build skill and confidence better than a running engine project. So here's an engine project that you can build with basic equipment and limited skill and experience...."

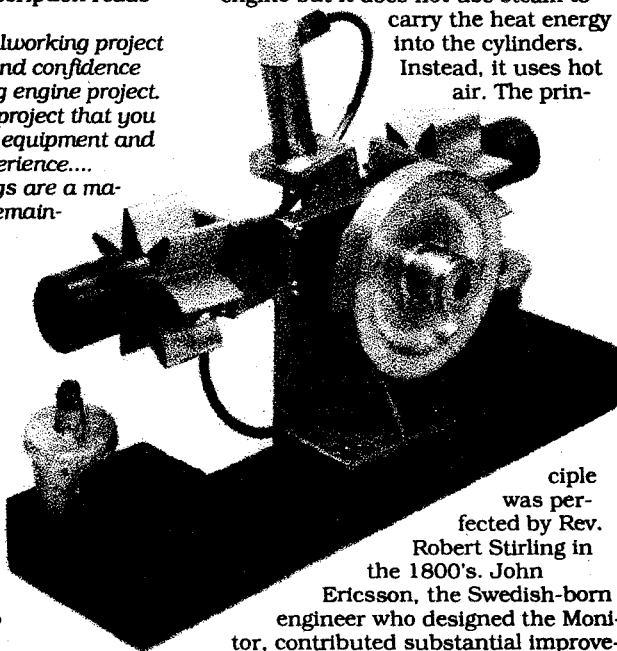
Aluminum castings are a major portion and the remainder is made of common water pipe, drill rod, brass rod and ordinary hardware, fittings and sheet metal. A small lathe fitted with face-plate, chucks and ordinary tooling will do the work.

You will greatly expand your skill and you will end up with a mechanical marvel to amaze yourself and all who see it."

But maybe you should hear some of the unofficial correspondence. April 1990: "Here's a couple of sketches of the new hot-air engine project... I've built a single cylinder engine of a similar design and it runs

1/2" long. When he fired up the alcohol burners, the engine sat there on my desk and silently started spinning. It was really something to see.

This is an external combustion engine but it does not use steam to carry the heat energy into the cylinders. Instead, it uses hot air. The prin-

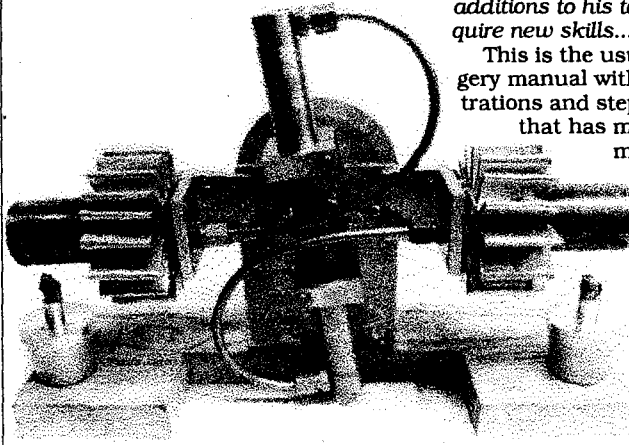


ciple was perfected by Rev. Robert Stirling in the 1800's. John Ericsson, the Swedish-born engineer who designed the Monitor, contributed substantial improvements to the engine.

Dave writes: "This is a free-style design with no practical application except as a demonstration engine. However, it is not a toy engine, and the builder will gain some valuable additions to his tooling as well as acquire new skills..."

This is the usual full-tilt Dave Gingery manual with all necessary illustrations and step-by-step how-to that has made his name a famous one among machine shop enthusiasts.

You get history, theory, drawings, photos, the whole thing. Dave writes "I've killed a disgusting number of hours watching it run." Another Gingery book! Need I say more? If you're into



great. Practically no sound or vibration at about 1200 rpm... It is a great training project that should be appropriate for second and third year shop students...."

During the summer of 1990 Dave stopped by and fired up his prototype engine. From the outside ends of the opposing cylinders the engine is 11

working metal, get a copy of this book or a straightjacket. If you don't order this book, you're obviously losing your mind, and you're gonna need the jacket!

Great book. A "must have!" Order a copy today! 8 1/2 x 11 paperback 76 pages No. 1302

\$9.95

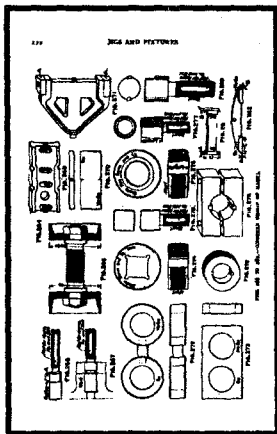
JIGS & FIXTURES

JIGS AND FIXTURES

by Colvin & Haas
reprinted by Lindsay Publications

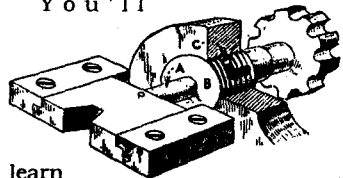
Jigs and fixtures are useful in mass production even for the "basement factory."

Chapters include: system in the tool room, the different kinds of jigs, locating schemes for drill jigs, standard bushing for drill jigs, some of the details of jig making, miscellaneous jig details, jig clamps and clamping



methods, milling fixtures of various types, pneumatic fixtures for holding work, uses and advantages of the latch jig, designs of and materials for gages, external and internal thread gages, miscellaneous manufacturing gages, the designing of machine vise jaws, and construction and uses of mandrels.

You'll



learn ways of making removable slip bushings, ways to prevent small bushings from turning (something often overlooked), types of angle plates, adjustable stops, design ideas for clamps to prevent machining mistakes, and on and on. The vast majority of this gear is aimed at small machine tools, not industrial monsters. Everything is well illustrated.

You get great practical details, hints and tips. Worth having if you take machine fabrication seriously. Useful. Entertaining. Get a copy. 5 1/2 x 8 1/2 paperback 168 pages

No. 21273 \$9.95

Tools, Chucks & Fixtures

TOOLS, CHUCKS AND FIXTURES

by Albert A Dowd
reprinted by
Lindsay Publications

Discover ingenious ways of clamping and machining. Chapters include adjustable and multi-cutting turning tools, design of boring tools, recessing tools, floating reamer holders, arbors for turning and boring, holding devices for lathe and boring mill work, methods of machining thin and irregular work, taper boring and turning attachments, machining convex and concave surfaces, methods for machining eccentric work, counterbalanced and indexing fixtures, influence of chips on the design of tools and fixtures, and providing for upkeep in the design of cutting tools.

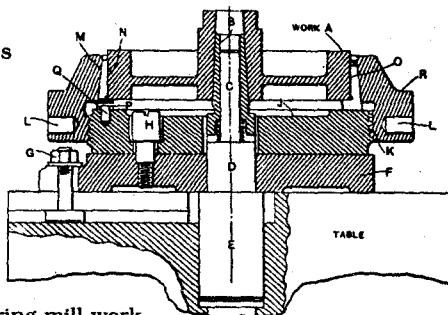
You get illustrated discussions on a holder for small reamers, arbors for large work, contracting pin chucks, fixture for holding several sizes of bevel gear blanks, boring bar with adjustable cutter, indexing fixture for cast-iron valve body, and on and on.

Some of this stuff you won't be able to use directly unless you have a turret lathe, are producing large flat belt pulleys, and so on. But even the devices you can't use are of value because they will teach you something when you see how another ingenious machinist from another era solved a difficult problem.

You get chapters of short stories reprinted from *Machinery* magazine prior to 1915. Unusual book. Some directly useful info. Some not. Great ideas! Study it. Experiment. Order a copy today! 5 1/2 x 8 1/2 paperback 304 pages

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Turning! Boring! and Grinding!

TURNING, BORING AND GRINDING

by Dowd and Curtis
reprinted by Lindsay Publications

Here's a book that explores the design of the machine tool itself and why its parts are designed the way they are.

Chapters include consideration of turret and engine lathe tooling, design of chuck jaws, second operation work, design of special fixtures, inside holding methods, turning tools for turret lathes, boring tools, facing tools, recessing tools, reamers and floating holders, cross-slide tools, attachments for turret lathes, layout work, vertical lathes, vertical machines and boring mills, tapered and curved surfaces and fixtures for grinding.

You'll see drawings of quick-operating threaded work arbors, a chucking fixture for eccentric casting, application of a floating scroll chuck, and much more.

Published in 1920's for manufacturers. Advanced information for the guy who is going beyond basic machining, or is considering some limited mass production. Unusual material. Get a copy. 5 1/2 x 8 1/2 paperback 340 pages

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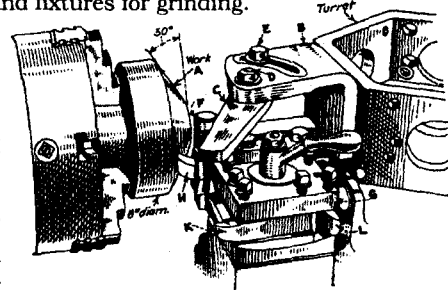
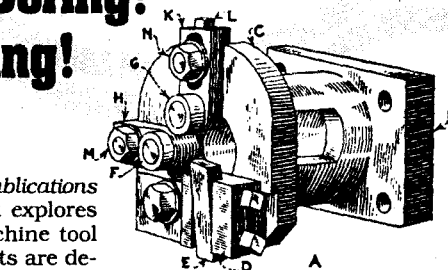
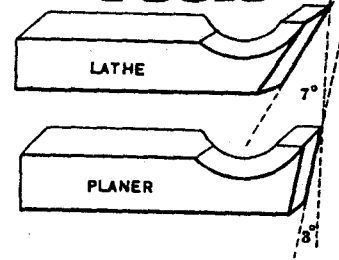


FIG. 150.—Simple method of generating a taper.

Lathe & Planer Tools



LATHE AND PLANER TOOLS Machinery Reference Series No. 7

reprinted by Lindsay Publications

Learn about "Cutting Tools for Planer and Lathe" — the basic information about grinding and setting tools that every machinist should know.

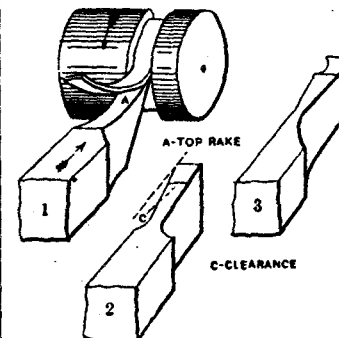


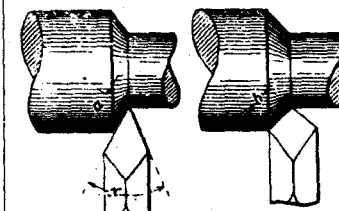
Fig. 10. Action and Form of Cutting-Off Tool.

"Boring Tools" will show you some of the methods in use in 1908 that just might solve a shop problem that you'll encounter soon.

"Shape of Standard Shop Tools" discusses just that — the best shapes for the particular job. Numerous illustrations will reveal shapes, the desired rake, length of shank and how these details affect the tool performance.

Finally, explore an unusual section on "Straight and Circular Forming Tools". Learn how to calculate dimensions and build the tools. Great information — a mixture of basic and unusual info low price. Order a copy.

5 1/2 x 8 1/2 booklet. 40 pages. No. 893 \$2.95



SHAPER OPERATIONS

by J. W. Barritt

reprinted by

Lindsay Publications

Good information on running a shaper is very hard to find. The last booklet of any quality was produced by South Bend Lathe, but it's no longer in print. But here's something I think is even better.

You get "job ticket" lessons published in 1937 for machine shop students. You get a list of the tools required, a break down of the major operations with detailed steps in each operation, followed by quiz questions to test your knowledge. Each job is accompanied by

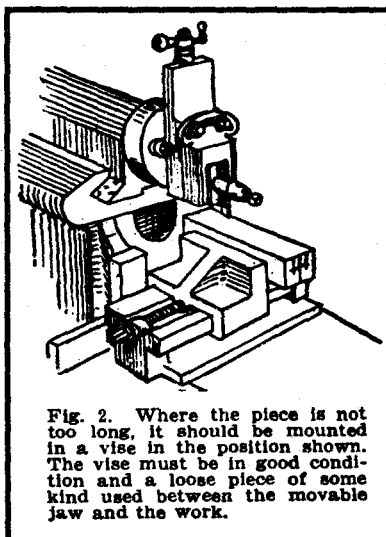


Fig. 2. Where the piece is not too long, it should be mounted in a vise in the position shown. The vise must be in good condition and a loose piece of some kind used between the movable jaw and the work.

SHAPER OPERATIONS

illustrations and "blue prints" to show you how the work is mounted and machined.

When you're done with each of these lessons, you should be very comfortable, if not expert, in running a shaper.

Get yourself a copy of this, Gingery's "How to Build a

Shaper", "Advanced Machine Work", "Lathe and Planer Tools", and other books in this catalog and get to work. Not only is there lots to be learned, there is a lot of fun to be had! Order a copy and get started!

8 1/2 x 11 paperback 55 pages
No. 21036 \$7.95

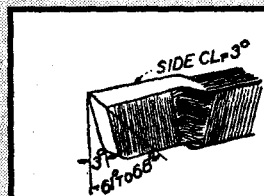


Fig. 5. Increasing the angle of the cutting edge on a side finishing tool will often stop chatter, provided the tool and the work are clamped tightly.

Comments from Dave Gingery!

SHAPER OPERATIONS is unbelievable. This book gives simple step-by-step instructions on "impossible jobs". I've never seen any of the operations described better. And most of it I've never seen attempted at all. Most of the machinists who knew how to run a shaper are dead. And even if they were alive few of them would be able to deliver such clean, no-nonsense instruction. If you have a shaper, you should have this book. And if you read this book, you will want to buy or build a shaper.

STEP-BY-STEP LESSONS:

- machine plain surface on cast iron
- machine a plain surface on cast steel
- machine three surfaces with one setting
- machine a rectangular cast-iron block all over
- machine a cast-iron angle plate
- lay out and machine a cast-iron cylinder
- lay out and machine a tool steel V block
- machine a brass bracket
- cut a keyway in shaft
- cut a keyway in gear blank
- cut a deep slot
- machine a concave surface
- machine a concave surface of large radius
- machine a driver of machine steel
- cut a tool steel cam
- machine a cast-iron foot
- machine a steel wedge
- machine a taper gib
- machine a cast steel block
- cut a T slot
- cut a rack

SHAPERS!

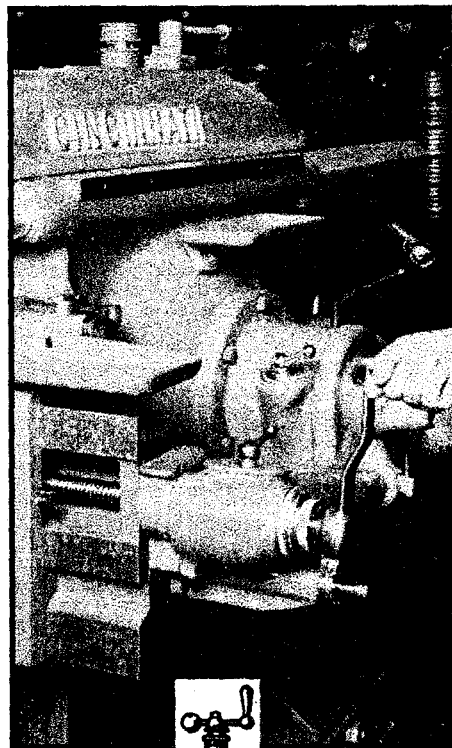
World War II Text Book!

SHAPERS

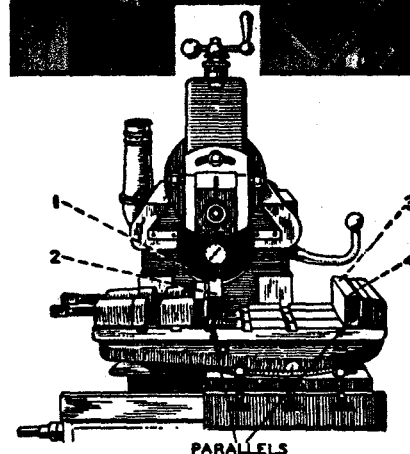
by Emanuele Stiert

reprinted by Lindsay Publications

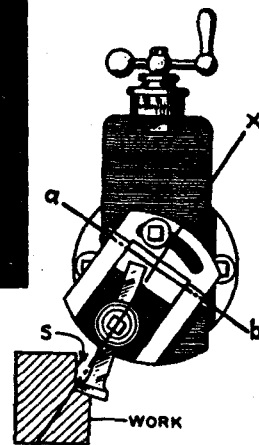
No doubt, the reason for publishing this book in 1943 was the need to train machinists for war production. That meant training people in the shortest amount of time to produce quality work. Stiert



produced a book on running shapers that got right to the point. Contents include classification and construction of shapers; shaper tools; holding the work; elementary shaper operations; the vertical shaper; elementary vertical shaper operations; description of a modern shaper; shaper maintenance; description of a modern vertical shaper; general description



PARALLELS



APRON SWIVELLED FOR VERTICAL CUT. (FIG. 30)

of the Pratt & Whitney shaper drive to the machine; and safety rules.

This little handbook (we've enlarged it from its original size) is quick and dirty. In chapter four, for instance, the sections are titled: testing the work seat; testing solid jaw for squareness; setting vise parallel with direction of stroke; selecting the proper tool; taking a horizontal cut; adjusting the work; adjustment of stroke; and on and on.

There seems to be a shortage of good how-to books on shapers. This not only tells you how to run a shaper, it does it quickly and clearly. You get a how-to book that is easy-to-read.

You may not have to make munitions for the boys on the front line, but you can learn to run a shaper as quickly and efficiently as those who did. If you have a shaper, get a copy of this. Or if you intend to build Gingery's shaper, this a must-have companion book. Excellent. Get a copy. 4 3/4 x 7 paperback 180 pages

No. 21460

\$8.95

PLANER OPERATIONS

PLANER OPERATIONS

by J. W. Barritt

reprinted by

Lindsay Publications

Here's another 1937 "Operations" book by Barritt. Lessons include truing up a planer table, setting head square with table, setting head to a given angle, setting rail parallel with table, machining a cast-iron cover, machining a 16-inch cast-steel elbow, a taper gib, a cast-iron soleplate, a base plate, a gear case, a forged tool-steel anvil block, a forged steel levelling block, an angle plate, a splined shaft, a forged steel shaft, an expansion joint, steel gear segment, a brass brake shoe, a cast-iron milling machine table, grinding the top of a cast-iron pedestal, and sharpening a tool-steel knife.

Not many shops have planers these days. But almost any shop can benefit from a planer or its special form, the shaper. What you learn here is how a machinist can quickly and easily machine complex forms to high tolerance.

Loads of illustrations, not the most expertly drawn. You'll learn everything from mounting the work, to adjusting the head, to taking the cuts, to choosing the appropriate tool and sharpening it.

Consider a copy of this. Even if you don't have a planer or shaper, just the knowledge of how the work is done gives you a significant edge over a machinist who doesn't it. This is worth having. Order a copy! 8 1/2 x 11 paperback 72 pages

No. 21230

\$8.50

Planers, Shapers & Slotters

Use, Set Up, and Operation

PLANING, SHAPING & SLOTTING

by Fred H. Colvin

reprinted by Lindsay Publications

Colvin will show you to set up and operate a planer, a shaper and a slotter using actual shop practice as examples in this 1943 handbook.

Chapters include: planers, shapers, and slotters; cutting tools for planers, shapers and slotters; clamping work for planing and shaping; setting up work on the planer; shapers; ways of holding work; examples of shaper work; and slotting machines.

You'll learn about these three machines, their construction, advantages and disadvantages. You'll learn how to grind the

correct angles on their respective tools to accomplish your goal. Clamping and setup can be a headache, but you'll be shown how to go about it.

A short but interesting chapter will show you special shaper tools you can build for special slotting and shaping jobs. You'll see a special rotating tool for cutting curved surfaces, a special jig that cuts extra long keyways while eliminating spring in the tool.

A great little book written by "Mr Machine Shop" himself. Well illustrated and easy to read. Get a copy. You'll like it. 4 1/4 x 7 paperback 128 pages

No. 4988

\$9.95

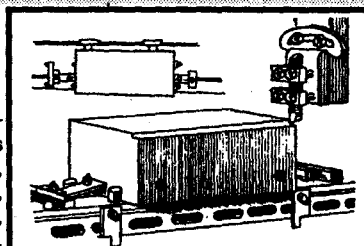
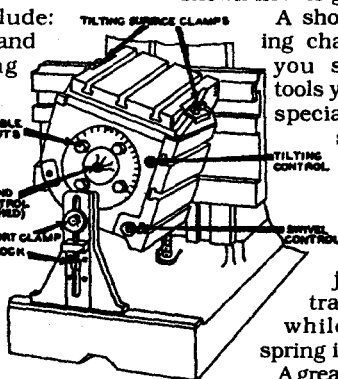


Fig. 1. Be sure the toe clamps are solidly braced and pulled down hard, as otherwise the tool will pull the work out of place. A setup of this kind must be carefully watched if an accident is to be avoided.

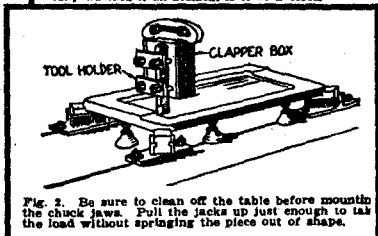


Fig. 2. Be sure to clean off the table before mounting the chuck jaws. Pull the jaws up just enough to take the load without springing the piece out of shape.

Milling Machine Operations!

Make your milling machine sit up and sing, instead of chatter...

MILLING MACHINE OPERATIONS

by J. W. Barritt

reprinted by Lindsay Publications

Here you get valuable lessons that can make you an expert with a milling machine. You get an introduction to the milling machine, the care of arbors, mounting the work, feeds and speeds, clearance angles and other essential topics.

You get step-by-step instructions and drawings that will teach you how to cut off a brass packing

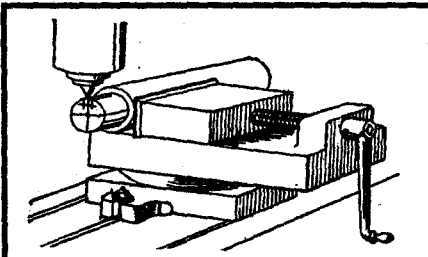
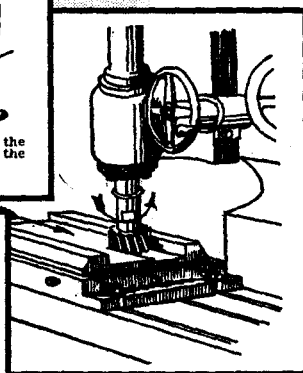
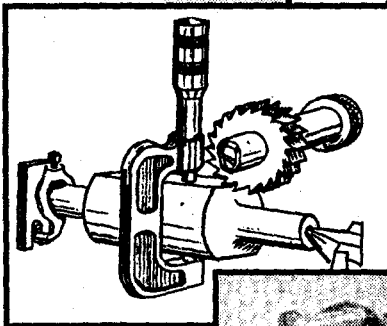


Fig. 2. This is one way of centering the work with the spindle. It is necessary that the keyway be cut on the center of the shaft.



piece, cut off a cold rolled steel plate, saw a Bakelite plate, machine a brass spacer, a cast-iron bearing key, and several cast iron brackets.

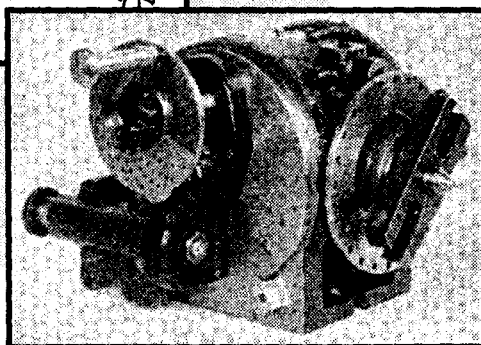
Then you will be introduced to the indexing head and its use. You'll learn how to cut a tang on a tool-steel spotfacing bar, mill a machine steel latch pin, mill a machine steel stud and a variety of shafts, machine a cast-iron gear, a steel quadrant, a steel clutch with four flat teeth, a cast-iron bevel gear, a brass shoe, a cast-iron soleplate, a forged steel packing piece, a machine steel pull pin, a steel gear, a steel worm, and more.

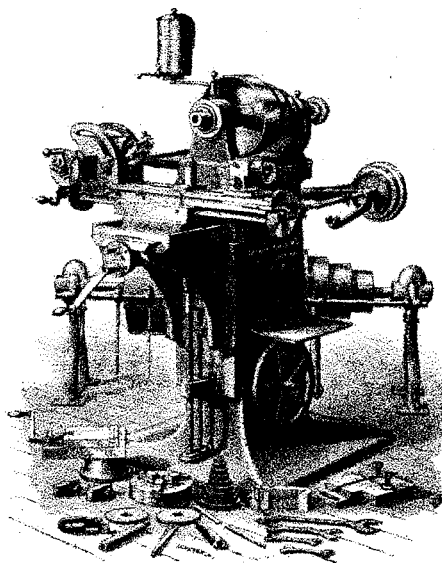
Most of the lessons show set ups for the horizontal milling machine which is the traditional miller that Dave Gingery shows you how to build in his books. Towards the rear of the book are several lessons for the vertical milling machine. Regardless of the type of machine you have, the lessons are applicable. You'll learn how to approach the work so as to ensure accuracy and avoid costly mistakes.

Make your milling machine sit up and sing rather than make it chatter! Quality lessons! Loaded with illustrations. Order a copy today. 8 1/2 x 11 paperback 110 pages

No. 21141

\$9.95





Brown & Sharpe Milling Machines!

CONSTRUCTION AND USE OF UNIVERSAL MILLING MACHINES

by Brown & Sharpe Mfg. Co.
reprinted by Lindsay Publications

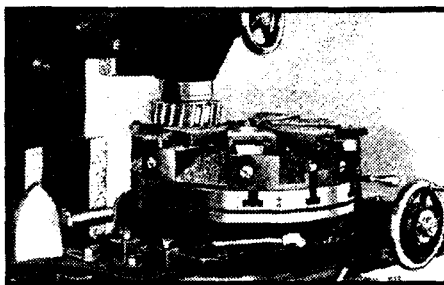
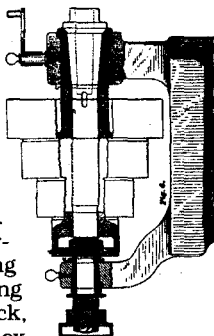
Despite the name, this fascinating 1882 volume will not show you how to build a milling machine. Brown & Sharpe wanted to build the milling machine and sell it to you.

In some ways you'll find this to be a time machine taking you back a hundred years to see state-of-the-art milling machines. But you'll also find this valuable how-to despite its age.

Chapters include description of small universal milling machine, capacity and use of machine, starting the machine, operations, the spiral head and its use, gear cutting, patent cutters for the teeth of gear wheels, examples of work done on large machine, grinding cutters and mills, and the large universal milling machine.

You'll find page after page of valuable illustrations which is quite a rarity for 1882. You'll learn about arranging the vise, using distance washers, cutting off and squaring up stock, forming square and hexagonal bolt heads, using the dividing head, fluting taps, and more. You'll find several pages on fabricating and heat-treating twist drills. You'll get tables, charts and diagrams. You'll be shown how to sharpen mills and cutters on a simple tool grinder.

This is time machine book, a how-to book, and a fun-reading book. It's reasonably priced, and worth having. I like it. I think you will too. Order a copy! 5 1/2 x 8 1/2 paperback 96 pages
No. 20668 \$5.95



Cincinnati's Treatise on MILLING AND MILLING MACHINES

TREATISE ON MILLING AND MILLING MACHINES

by Cincinnati Milling Machine Co.
reprinted by Lindsay Publications

In 1919 Cincinnati published this book to teach machinists about the significant changes and uses of milling machines that had resulted from World War One. Despite its age, this book can teach you a lot, too.

You'll find page after page of great photographs, drawings, and easy-to-read text that explains everything from the construction of milling machines and their installation, to the use of jigs, milling cutters, and indexing heads. You get loads of tables, simple and yet detailed explanations on how to make necessary calculations (should be easy with today's pocket calculators), and even tips on unusual milling jobs. And there is much more.

Although most of the examples are for horizontal milling machines, the vertical model is also shown and discussed. Most operations are common to both machines. You'll find that the lessons taught here are valuable regardless of the type of machine you have.

This is a gem of a book containing a wealth of information for any machinist — and that includes you. Put a copy in your machine shop reference library. It's excellent! 5 1/2 x 8 1/2 paperback 409 pages
No. 20358 \$13.95

CONTENTS

Construction and Use of Milling Machines • Erection, Care and Adjustment of Milling Machines • Toolroom Millers — The Dividing Head, etc • Setting up the Machine • Analysis of the Process of Milling • Milling Machine Feeds • Speeds of Milling Cutters • Stream Lubrication — Cutter and Work-Cooling System • Milling Cutters — Notes on the Design & Efficiency of Modern Cutters • Cutter Sharpening • Power Required to do Milling • Various Methods of Milling • Milling Jigs and Fixtures • Sizing and Cutting of Spur Gears • Shop Trigonometry — Bevel Gears and their Calculation — Instructions for Cutting Spiral Gear Cutting — Calculations, Formulas, Tables, etc • Worm Gearing — Calculations and Methods of Cutting • Continued Fractions and their Application to Shop Problems — Angular Indexing • Change Gears for Cutting Spirals • Cams — Tables for Setting the Milling Machine for Milling Spiral Cams • Tables of Natural Trigonometric Functions

Colvin: Run a Milling Machine!

RUNNING A MILLING MACHINE

by Fred H. Colvin

reprinted by Lindsay Publications

Colvin, "Mr. Machine Shop", writes in the preface:

"Although this book is by no means a complete treatise on all the problems of milling machines and the large variety of work that is done on them, it makes clear the general construction of the different types of machine and gives a general idea of the kind of work they do. It shows how the different machines operate, points out the necessity of having the work firmly clamped and the cutters sharp, and gives the foundation of the knowledge necessary to become a first-class milling-machine operator."

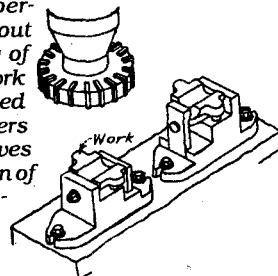
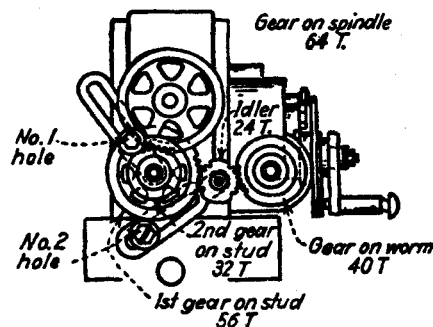


FIG. 92.—Double fixture to secure continuous milling.
class

Beginning with the hand milling machine, which is the simplest machine of this type to learn how to operate, the book shows the other and more largely used kinds, gives the names of the principal parts, and shows a variety of the work that is done on them..."

This is a great companion to "Running an Engine Lathe" that was first published in 1941. Chapters include milling machines and their parts, examples of milling machine work, milling cutters, speeds and feeds of milling cutters, setting cutters for different kinds of work, milling vises and fixtures, the dividing head, a wide-range dividing head, and cutting helices sometimes called spirals.



Although most of the milling machines illustrated are horizontal machines just like the machine Dave Gingery will show you how to build, the material here is general enough to be useful on any milling machine — horizontal or vertical or even on milling attachments for lathes.

Well illustrated. Useful info. Worth having. Get a copy! 5 1/2 x 8 1/2 paperback 157 pages
No. 20986 \$7.50

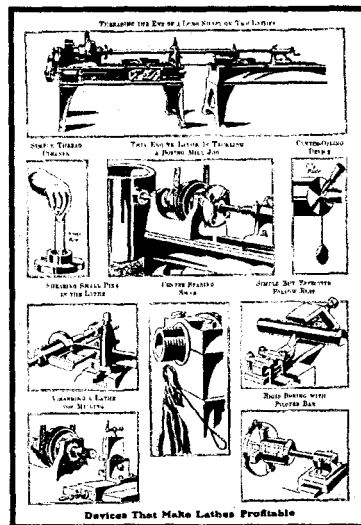
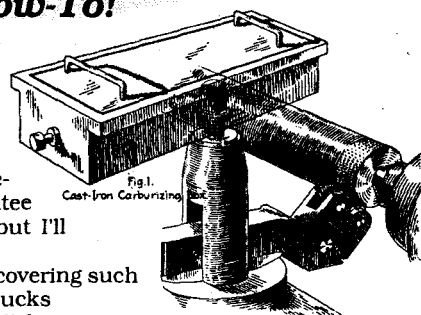
by John Van Deventer
reprinted by Lindsay Publications

In *American Machinist* magazine before World War I ran a series of articles on the small shop. They were so popular that the articles were reprinted in this entertaining book. I can't guarantee you that this book will make you any money, but I'll guarantee that you will find it fun reading!

You get 72 different articles, most illustrated, covering such topics as ideas for the small shop blacksmith, chucks and turning, various ways of pulling keys, end mill for babbitt, prevent loral shrinkage in aluminum casting, profit making devices for turning, boring and turning kinks, the small shop grinding wheel, knurling in the small shop, getting "into" the small shop, making patterns and castings for the small shop, boring pump chambers in the drilling machine, a variety of expanding arbors, slide rest kinks and cutting tool stunts, and much more.

The last 50 pages or so are completely filled with drawings that will throw more ideas at you than you can handle in one sitting. This is meant to be educational, directly aimed at the one or two-man shop struggling with less-than-the-best equipment and less-than-adequate education. (Sounds like most of us, doesn't it?)

You'll find a lot of useful information here. But I'd rather promote it as fun. It's one of those books you pick up and get a good feeling. (Of course, you're probably one of those guys that prefers the smell of hot tool steel to a woman's perfume. Hopeless...) So just don't SIT there. Order a copy of this, and THEN sit there. Enjoying. You'll like it. 8 1/2 x 11 paperback 113 pages
No. 21044 \$9.95



MACHINE TOOL RECONDITIONING and Applications of Hand Scraping by E.F. Connolly

Using this book you have an excellent chance of bringing a junk machine tool back to life, making it perform like new with dead-on accuracy. You'll learn how to recondition lathes, grinding machines, horizontal and vertical milling machines.

Chapters include: hand scraper, manipulating scraping tools, bench oil stones, how to make a surface plate, straight edges, marking mediums, squares, levels, test bars, dial indicator, gibs and their adjustment, grooves, hints on routine, frosting techniques, automatic generation of gauges, factors in reconditioning, surface bearing requirements of slides and ways of precision grinders, problems in alignment, and individual chapters on the lathe, horizontal milling machine, vertical milling machine, cylindrical grinding machine, and surface grinding machine.

You'll find many illustrations, mostly showing how to set up combinations of plates, straight edges and dial indicators to check the accuracy of the equipment so that you know where to scrape it into truth.

These are same techniques used by Maudslay, Whitworth and other early precision machinists to build their own lathes. You might even consider setting up a business rebuilding machine tools. Or maybe you might even want to build custom machine tools. Certainly, the lessons learned here should be applicable to many other precision machines.

The price is high, but you get detailed, rare information. I'm quite impressed. A great reference! When your lathe or milling machine starts acting up, pull this book off the shelf and find out what the trouble is! No machinist should be without a copy. A dynamite book! 8 1/2 x 11 hardcover 533 pages well illustrated.

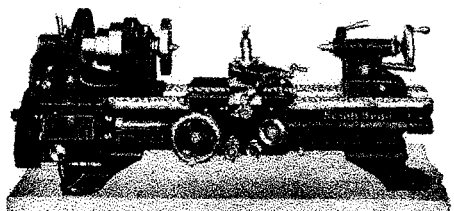
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Complete 1934 South Bend Lathe Catalog!

1934 MODEL SOUTH BEND LATHES
by South Bend Lathe Works
reprinted by Lindsay Publications Inc

If you wanted to buy a small engine lathe during the Great Depression, you would have searched through this illustrated gem from February 1934.

You'll see all kinds of lathes: bench lathes, tool room lathes, toolmaker lathes and more. You get photographs. You get all the specs. You'll also get floored by the prices: a 9" toolmaker lathe with a 2' bed including face plate, change gears and motor for \$138.00.



You'll also see a 36" brake drum lathe, self-centering mandrels, collets, taper and milling attachments, turnstile bed turrets, chucks, dogs, knurling tools, and other accessories.

If you have an old South Bend lathe, dream about finding one, collect tool catalogs, or are just a lathe fanatic, this is a must have. **YOU CANNOT ORDER FROM THIS LATHE CATALOG.** It is for entertainment purposes only. (Believe it or not, there are always a couple of boneheads who read this catalog who think they can successfully order from a 60 year old reprinted catalog. Don't you be one of them...)

Interesting catalog. Get one. Fun reading. 8 1/2 x 11 paperback 72 pages
No. 21397 \$7.95

Advanced Machine Work!

ADVANCED MACHINE WORK

by Robert H. Smith

reprinted by Lindsay Publications

Here's the best general machine shop book I've ever seen old or new. Smith brought out this book in 1915, updating it in 1925. That makes it new

enough to still be of great value, but old enough to contain a many techniques that are no longer taught.

You get easy-to-read text, step-by-step instructions, and great illustrations. Modern books are prettier, but they cannot possibly do a better job of teaching.

"Advanced" covers everything you can imagine from basic operation of a micrometer and vernier caliper, to the testing of machine tools for accuracy. You'll learn the different methods of

turning tapers and their fitting, detailed instructions on cutting threads, making bolts and nuts, face plates and chucks, mounting work, turning flanges and pulleys, boring, threading, cutting square threads bolts and nuts, cutting multiple threads, knurling, and much more.

You'll learn about drilling jigs, eccentric turning, facing large cylinders, use of steadies and followers, external and internal grinding, and the grinding of piston rings, milling cutters, reamers, and more.

Chapter nine covers planers and their use. Learn to plane keyways, lathe

"Prepared for students in technical, manual training, and trade schools, and for the apprentice and the machinist in the shop."

beds, vises, and more.

In learning to use a milling machine you'll groove taps, flute reamers, mill T-slots in a circular table and more.

And there's so much more on everything from gear cutting to making mandrels, taps, twist drills, using indicators, sine bars and more. You'll learn how to make expensive tools that you now buy. You'll even learn how to check the accuracy of lathes, milling machines, drill presses, and lead screws, and even use of optical flats to measure to millionths of an inch!

Just about everything you can imagine in amazing detail. This baby delivers! A bargain!

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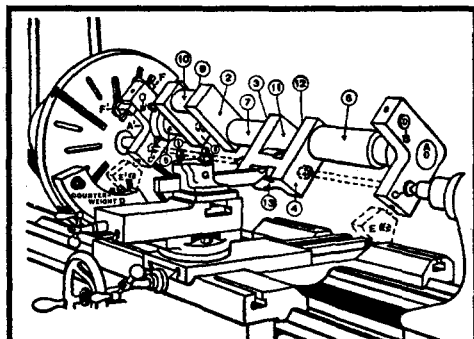


FIG. 41. — TURNING A TWO-THROW 90° ENGINE CRANKSHAFT. SCHEDULE DRAWING.

SCHEDULE OF OPERATIONS

Rough turn blank. Mount up on regular centers AA', Fig. 41. Rough square faces of webs 1, 2, 3, 4, and rough turn shaft 5, 6, and 7. Change to crank centers BB'. Rough square and turn 8, 9, and 10. Change to crank centers CC' and rough square and turn 11, 12, 13. Counterbalance crank fixtures by using weight D, or preferably by adjustable weights EE'. Use driver FF' with piece of leather to reduce jar. Season crankshaft between roughing and finishing, if time will permit. Finish square and turn in reverse order. It is best to spot 7 and use steady rest for finishing. For slender crankshafts use jack or braces as shown by dotted lines. European tool post G is preferred to a single tool post. Mill or plane edges of webs.

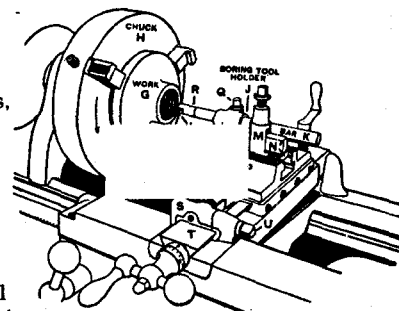


FIG. 14. — INSIDE THREADING IN ENGINE LATHE.

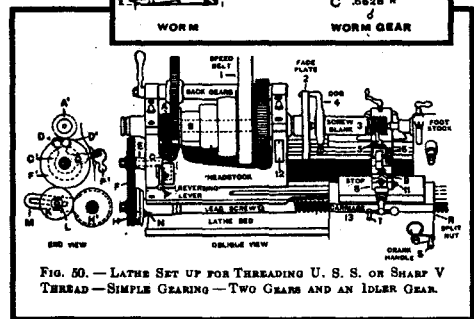
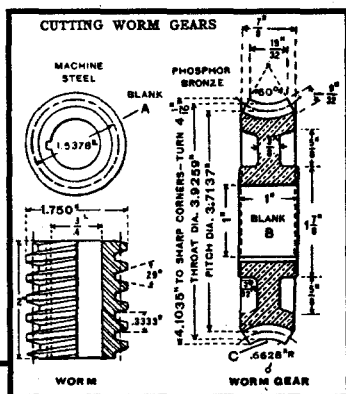
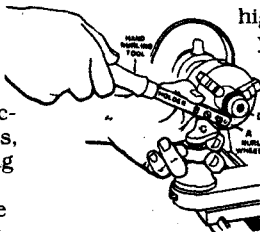


FIG. 50. — LATHE SET UP FOR THREADING U. S. S. OR SHARP V THREAD—SIMPLE GEARING—TWO GEARS AND AN IDLER GEAR.

A "Damned Fool" Book!

People who have seen this book claim "Anyone who considers himself a machinist and doesn't have a copy of this must be a damned fool!"

(I can identify with that...)

A "Must Have" Machine Shop Reference!

1224 ADVANCED MACHINE WORK

MAKING PLAIN MILLING CUTTER

21. To make $2\frac{1}{4}'' \times \frac{1}{4}''$ plain milling cutter, 18 teeth, Fig. 18.

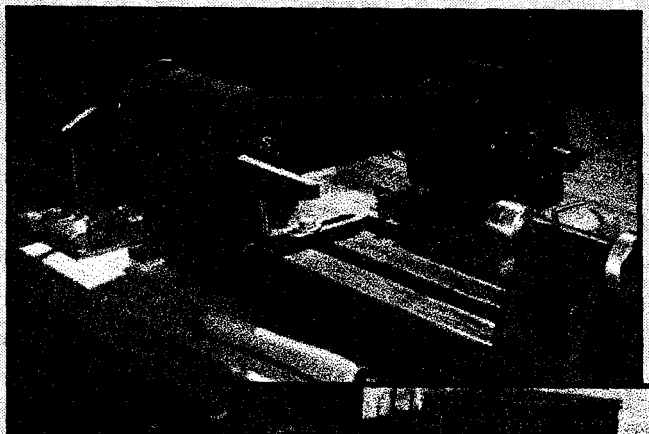
FIG. 18. — SCHEDULE DRAWING.

Specifications: Material, annealed carbon or high-speed steel disk $\frac{1}{4}''$ large; weight, 14 oz. Hardness, 20 to 25 (scleroscope). High-speed steel, or stellite cutting tools.

Time: Study drawing and schedule in advance, 5 min. — Oil machines, 12 min. — Chuck and jig ream, 26 min. — Turn, face, and cut grooves, 51 min. — Mill teeth with machine "set up" and stamp, 52 min. — Harden, 10 min. — Lap, 25 min. — Polish and color temper, 15 min. (or oil temper and polish, 7 min.) — Grind teeth twice around with machine "set up," 6 min. — Clean machines, 11 min. — Total, 3 h. 33 min.

SCHEDULE OF OPERATIONS, MACHINES AND TOOLS

OPERATIONS.	MACHINES, SPEEDS, FEEDS.	TOOLS.
Chip or file stem off side of disk. Set dead center in approximate alignment.	Engine lathe, $12''$ to $10''$. 1st or 2d speed or 130 R.P.M. Hand feed.	Independent or universal chuck centering tool, $\frac{1}{4}''$ twist drill and holder, oil.
Mount disk in chuck, smooth side out; true up and drill hole (1) $\frac{1}{4}''$. See Chucking, pp. 408-412.		Boring tool $30''$ rake calipers, rule, oil. Fluted chucking reamer .008" small, oil.
Bore hole (1) $\frac{1}{4}''$. See Boring, pp. 504-506. Power ream. See Exception, 1225.	1st or 2d speed or 40 F.P.M. Medium Power feed — 80 to 1".	

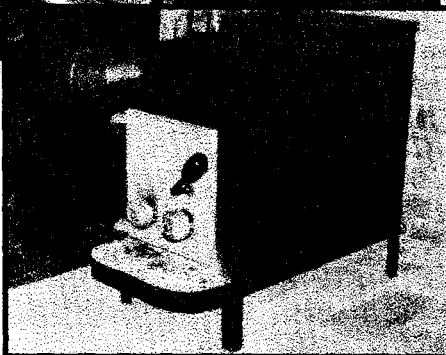


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by H. L. Hanes

Ten great metal projects in one book!

Build a foundry/furnace that will melt three quarts of aluminum. You'll be shown how to configure the furnace to your own needs, and use it for everything from pouring castings to heat treating.



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- Saw Sharpener
- Pro Wood Lathe
- Bandsaw Blade
- Welding Jig
- Rivet & Bolt Shear
- Gasket Punch
- Drill Press Clamp
- Lathe Live Center
- Tapping Guide

Hal Hanes's Advanced METALWORKING Projects

Build an airtight woodstove to keep you warm in winter. This is a boilerplate stove of professional quality. It heats as good as it looks.

You can build a sharpener to keep the blades on your table or circular saw cutting smoothly. Or use it to sharpen blades for woodworkers. A possible money maker!

Build a professional quality wood lathe that will handle everything from eight-foot spindles to large diameter bowls. It's a multi-speed lathe with a ball-bearing headstock, and can be built with as long a bed as you need. This is a top quality design.

In addition, you get six smaller, simpler projects: a simple but very effective jig for silver soldering bandsaw blades back together, a rivet and bolt shear, a professional quality gasket punch, a hold-down clamp for a drill press, a lathe live center, and a tapping guide block.

Although the text will never win literary awards, it does explain in detail all necessary procedures. You'll see in a second that Hanes is a skilled metal worker, and that this book is of great value.

These projects are not for raw beginners. Some experience is necessary. You'll need a welder, a metal lathe, and you'll have to pour castings. That's why we call it advanced metalworking projects.

Get a copy of this. Any one of the four major projects described is worth more than the total price of the book. Ten dynamite projects for the price of one. That's not a bad deal!

Even if you don't intend to build immediately, at least put a copy in your reference library. You'll have it when you need it. Order one today! 8 1/2 x 11 paperback 80 pages heavily illustrated

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Standard & Emergency Shop Methods

STANDARD & EMERGENCY SHOP METHODS

by Colvin & Stanley
reprinted by
Lindsay Publications

The authors wrote this book to show machinists how work usually done on one machine tool could be transferred to quite a different machine tool to meet World War II emergency needs. Chapters include standard machine tools, standard methods and machines, making holes, boring machines and boring mills, lathe work, milling practice, planning, slotting, shaping and machine forging, and grinding operations.

You'll see special fly cutters made for use in a straddle mill, trigger housings on Army rifles being broached, a special grinder setup to keep milling teeth sharp, and much more.

Since this is an industrial book, the size of the machines can be incredible. The lessons you learn could certainly be adapted to a much smaller work piece. You'll get lots of good ideas on how to perform complex machining operations.

A good book from 1945. Lots of ideas. A lot of this will have to be modified and adapted to be useful! A good source of unusual ideas. Get yourself a copy. 5 1/2 x 8 1/2 paperback 333 pages

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SHOP KINKS

COST-CUTTING SHOP KINKS 1927

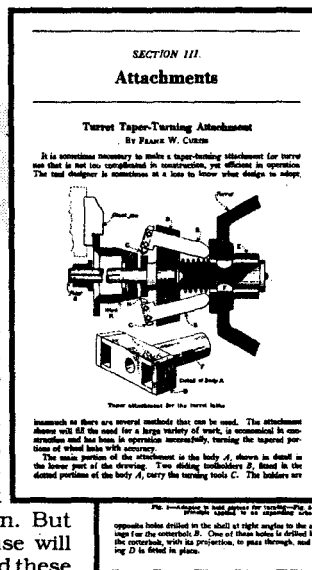
by American Machinist Magazine
reprinted by
Lindsay Publications

From out of 1927 comes an interesting little book with five sections: dies & press tools, toolholders, attachments, work-holding devices, gages, safety devices and small tools. You probably won't be able to use but a few of the devices shown. But even the ones you don't use will entertain you and (if you read these books for the right reasons) will generate valuable ideas.

Some of the topics include a unique method of indexing unusual numbers, a pull-head for a broaching machine, a full-floating reamer holder, quick-action toolpost and tools for the engine lathe, longitudinal stops for the lathe carriage, toolpost grinder for the bench lathe, boring spherical seats, boring fixture for a gear box, a quick-acting expansion mandrel, fixture for mill helical grooves, tool for reseating pop valves, tools for making cork washers, and much more.

These are articles reprinted from American Machinist magazine, and each is illustrated. You get other machinists solutions to common and not-so-common problems. Fun reading. Great ideas. I think you'll like it. Get a copy. 5 1/2 x 8 1/2 paperback 186 pages

\$9.95



TOOLS!

**MAKERS OF AMERICAN
MACHINIST'S TOOLS**
A Historical Directory of
Makers and Their Tools
by Kenneth L. Cope

What you get here is an illustrated directory of manufacturers of precision tools for machinists such as micrometers, surface gauges, calipers, dividers, try squares, hand vises, rules, depth gauges, and so on. This is an important reference book for tool collectors.

You get major chapters on Brown & Sharpe; Darling, Brown & Sharpe; Sawyer Tool, Standard Tool, Starrett, and J. Steven Arms. The second half of the book covers the smaller outfits like Cornell Tool; Disston & Sons; Goodell-Pratt; Kenrick & Davis;

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Springfield Machine
Screw, and many, many
more. Each chapter is
illustrated with illustrations
from trade catalogs.

This does not cover
lathes, milling machines or other machine
tools. There are no hammers, chisels, files
or other common tools. This is about measuring
devices to ensure accuracy in the machine
shop. If you're into tool collecting or
just interested in the history of the machine
shop, this is something to consider. Very
unusual. Excellent. 7x10 paperback 314
pages

No. 1362

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MODEL MAKING!

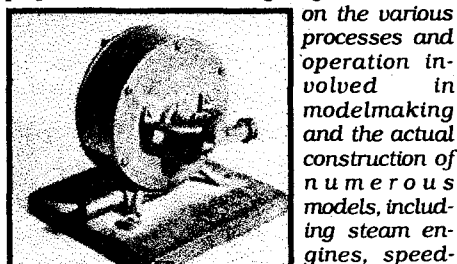
Over 400 Pages of Great
Ideas! Fun Book!

MODEL MAKING

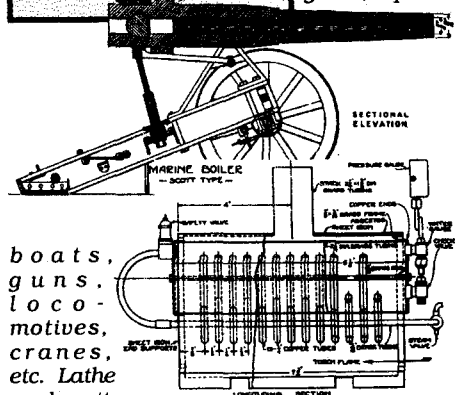
by Raymond F Yates

reprinted by Lindsay Publications

"A practical treatise for the amateur and
professional mechanic - giving instructions



on the various
processes and
operation involved
in
modelmaking
and the actual
construction of
numerous
models, including
steam engines, speed-



boats,
guns,
loco-
motives,
cranes,
etc. Lathe
work, pattern
work, electroplating, soft and hard soldering,
grinding, drilling, etc., are also included."

Sounds like a great book doesn't it? Actually the claims are a little inflated because the author tries to cover too much. Each topic could be a book in itself. Still, it is fascinating, and guaranteed to fill your head with ideas.

Chapters include: workshop, lathe work, drilling, soldering, hardening and tempering steel, abrasives, patternmaking, electroplating, model slide crank steam engine, model twin-cylinder engine, single-cylinder engines, model twin-cylinder marine engine, flash steam plants, flash steam plant for model airplanes, model steam turbine, model boilers, boiler fittings, model hydroplane, lake freighter, gasoline engine, model steam locomotive tank, siege gun, steam yacht, 34" monoplane and much more!

Some of these projects need castings which are not available. But with all the dimensions and photos given, you should be able to modify and improve the designs. This is great raw material for the model builder.

So if you have a small lathe and want to build something in the worst way, or you just collect plans, or you just want a great book for a rainy afternoon, grab this gem from 1925. Loaded with great illustrations and great ideas. Don't pass it up. Order a copy today! 5 1/2 x 8 1/2 paperback 430 pages

No. 4325

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LAYOUT AND FLOOR WORK

Layout, Drilling, Tapping,
Chipping, Babbitting & More!

LAYOUT AND FLOOR WORK

by J. W. Barritt

reprinted by Lindsay Publications

More great how-to just like "Lathe Operations" and "Shaper Operations".

Here, you get lessons for laying out work for the horizontal boring mill, the slotter, the shaper, the planer, and the drill press.

In the next section you get miscellaneous machine shop skills, some of which are quite useful and others probably won't be for the home shop. You get floor work with rope hitches, ladders, scaffolding, and blocking. You get lessons in basic drilling, tapping, driving studs, and chipping. Then you get

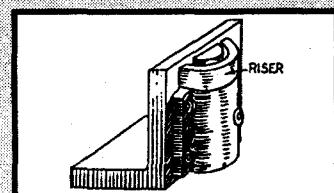


Fig. 1. This is a typical arrangement that is used for babbitt bearings. It is absolutely necessary that both the fixture and the bearing be hot before the metal is poured. The height of the riser is determined by the size of the bearing. It is placed there for the purpose of insulating the metal in the

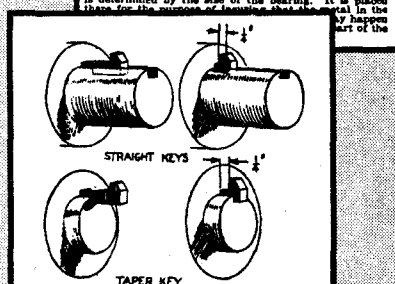


Fig. 2. Keys must be fitted correctly as otherwise they will cause trouble when in operation. A key is subjected to way in

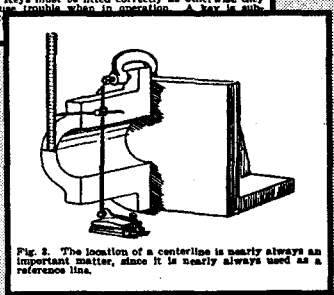


Fig. 3. The location of a centerline is nearly always an important matter, since it is nearly always used as a reference line.

several lessons entitled Babbitting solid bearings in place, Babbitting split bearings in place, Babbitting on a mandrel, pressing a gear on to a shaft, fitting keys, fitting large bearings, fitting crank brasses, and assembling a large centrifugal pump.

Each lesson is well illustrated and described with detailed step-by-step how-to. Layout is an essential skill. And the Babbitting info is excellent and hard-to-find. Either section make this inexpensive book worth having. Order one. From 1937 - 8 1/2 x 11 paperback 59 pages

No. 21508

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METALWORKING

Dave Gingery Loves This Book! but I'm not surprised...

Metalworking is nothing short of a dream-come-true for anyone beginning to put together a home shop. And for the bird who thought he had everything it fills gaps he would not imagine are there. Obviously the information is drawn from British journals of a century or so ago. And the Brits have carried this metal working much farther than we Colonials. Each section is packed with valuable information and is ample for a good healthy start in the various levels of metal crafts.

I thought the Foundry Work section lacking in some details of practice and procedures. But the discussions of various types of furnaces makes up for any lack elsewhere. Wish I had seen this section when I was putting my foundry together years ago.

I've never seen a better presentation of basic Smithing in any book. And the various types of blowpipes and bellows for soldering and brazing are great.

Repoussé is a new term to me. In the past I have referred to it as sinking and raising. Not being the artistic type I was not inclined to raise murals of flowers and figures in sheet metal. But this book shows how easily it is done and I may try my hand at it one day.

Naturally I appreciate the section on lathes and lathe work. And the chapter on building a lathe is by itself worth the price of the book. So also the details on tooling, attachments and accessories.

I could rave on but what's the use? Every shop bird should order a copy of this one. And if he's dumb enough to lend books, he should order two or more copies because few people would return this one...

An incredible master reference for the metal worker!

METALWORKING
Tools, Materials, and Processes
for the Handyman
by Paul N. Hasluck
reprinted by Lindsay Publications Inc

Every metal worker must have a copy this, just as every machinist must have a copy of "Advanced Machine work". This is top rate. Full tilt. I've never seen anything quite like it. As soon as I saw it, it went to the top of my list of books to reprint.

"Metalworking" was written and first published in England. This American edition was published in Philadelphia in 1907. The 760 pages and 2,206 illustrations cover just about anything you would want to do to a chunk of metal.

This covers so much I don't know where to begin. Under "foundry" you'll learn about building Faraday's blast furnace, a gas injector furnace, a brick-built furnace, an oil furnace, crucibles, flasks, sands and on and on.

"Smiths' Work" is not about the farrier's trade, but about decorative iron work — making beautiful iron flowers, gates, plant stands, fireplace fire dogs, brass fire screens, fireplace fenders, and a score of other Victorian blacksmithing projects. You get descriptions of the tools and anvil, of course, but you'll also find an interesting bending jig. The smithing chapter alone has 274 illustrations!

And on it goes: files, scrapers, buffing wheels, annealing furnaces, hardening and tempering equipment, drills, boring bars, and much more. You'll learn about the torches, bellows, furnaces, hearths for brazing and riveting.

The chapter on forging is more what we consider blacksmithing today: the basics of manipulating iron by heating and hammering.

The sheet metal chapter is a gem. With 177 illustrations you'll learn to make everything EXCEPT ventilation ducts. You'll see the bending devices, folding machines, a Jenny, the snips, anvils, stakes and other tools. Then you make a small oil cook stove with oven, a deed case, a "coal vase" (decorative coal scuttle), a sizeable

Don't Miss This!

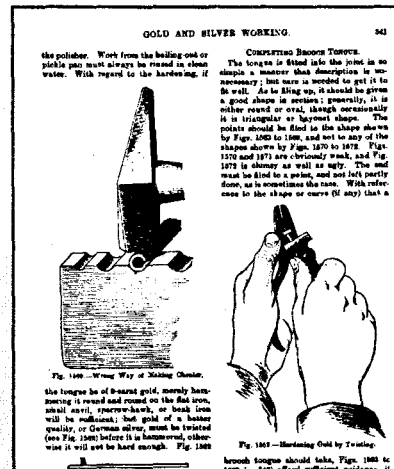


Fig. 1400.—Wrong Way of Shaping Chisel.

The longer is filed into the joint is so simple a matter that description is unnecessary; but care is needed to get it in the file. As to filing up, it should be given a good shape in section; generally, it is either round or oval, though occasionally it is triangular or square shape. The points should be filed in the shape shown by Figs. 1402 to 1406, and not to any of the shapes shown by Figs. 1407 to 1410. Figs. 1407 and 1408 are obviously weak, and Fig. 1409 is clumsy as well as ugly. The last must be filed to a point, and not left partly done, as is sometimes the case. With reference to the shape or curve (Fig. 1411) that a

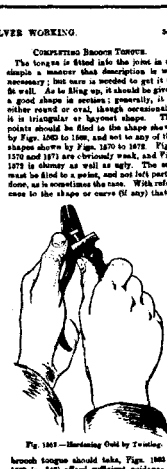


Fig. 1407.—Marking Out by Tracing.

brook tongue should take, Figs. 1408 to 1409 (p. 342) afford sufficient guidance, if being remembered that a brook tongue piece like a bayonet or sword, not like a good sword, is done and brought through the work in a different direction. Fig. 1408 shows a tongue intended to prevent a top heavy brook from tilting forward. Figs. 1409 and 1410 show two brook pins that

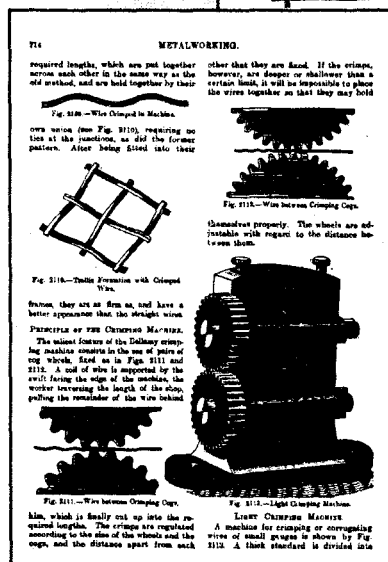


Fig. 1411.—Wire Clamped in Machine.

one wire (see Fig. 1411), requiring no ties at the junction, as did the former pattern. After being filed into their



Fig. 1412.—Wire between Clamping Caps.

Clamping caps require. The wheels are adjustable with regard to the distance between them.

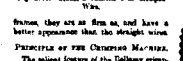


Fig. 1413.—Light Clamping Machine.

A machine for crimping or corrugating wire of small gauge is shown by Fig. 1413. A thick standard is divided into

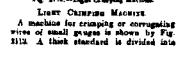


Fig. 1414.—Using Bow Drill.

work, discussions of lathes and their tools and use (237 illustrations here alone!), metal spinning techniques and projects, tool construction, and on and on.

You'll be shown how to build the treadle-driven 4 1/2" lathe with a 4' 6" bed complete with headstock, tailstock and slide rest. This chapter could be a book in itself, and I don't know where you'll get the castings unless you make them yourself.

After you make some jewelry, you can make a simple eight day, 18" high skeleton clock. Its mechanism includes a pendulum and fusee. The plans are

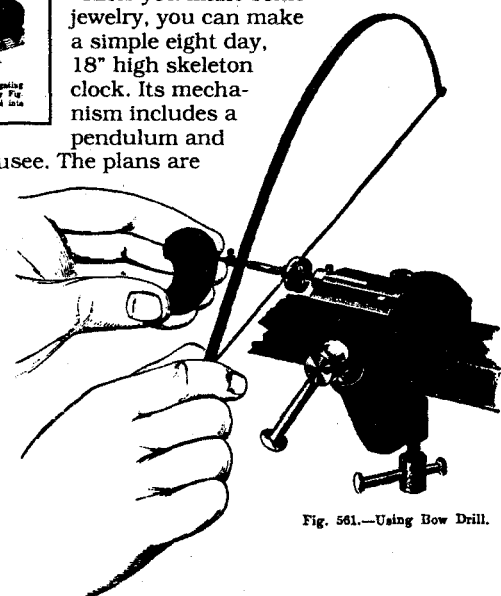
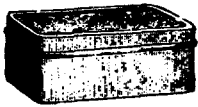


Fig. 561.—Using Bow Drill.



DIES

Their Construction & Use



DIES - THEIR CONSTRUCTION AND USE
by Joseph V. Woodworth
reprinted by
Lindsay Publications

Dies are magic! Mount them on a power press, slip in a piece of sheet metal, and let the press cycle. Out come simple flat shapes or complex forms like soft drink cans and auto fenders. And it is all done at incredible speed, time after time, each and every piece being identical.

Learn how you can put dies to work in small manufacturing shops. Thirteen chapters will teach you about blanking dies, piercing dies, simple dies for use in the machine shop, gang and follow dies, use of dies for production of sheet metal parts, bending and forming dies and fixtures, perforating dies, dies for curling, wiring and seaming, draw dies, coining processes, methods for feeding stock,

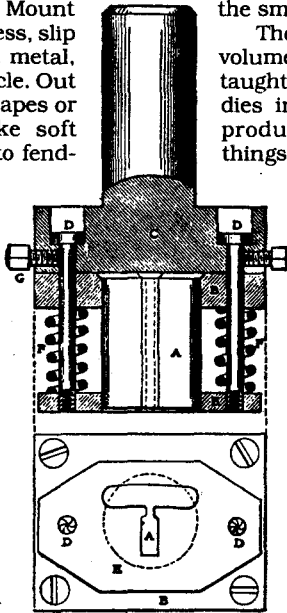


FIG. 142.—THE PUNCH.

hardening and tempering of dies, and more.

You get page after page of drawings and photos showing all kinds of dies for applications from turning a square of sheet metal into a tube in one hit, and punching holes, to the fabrication of those fancy old tins that held tea, tobacco, and crackers decades ago. You'll see a variety of presses - most of them in the smaller sizes.

The beauty of this 1917 volume is that you'll be taught how to make simple dies in smaller sizes for producing all kinds of things from safety pins to punching fancy leather pieces for shoes. You'll even see a compressed air drop hammer used for making sheet metal caskets!

You can learn right here how to make simple, low-cost dies in your own shop that produce items you can use yourself or sell as a sideline. Great information on a mass production tool useful to the small time operator. Very well illustrated. You'll like it. Get a copy. 5 1/2 x 8 1/2 paperback. 400 pages. No. 4309 \$15.95

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For example... "Modern Loco-

motive Construction" listed elsewhere in this catalog should be priced between \$60 and \$70. My price? \$45. How can I get away with that? One reason is that I don't have an 800 telephone number. I don't have to pay someone to sit here and wait for you to call. Or should I say, YOU don't have to pay someone to sit here and wait.

The fact is, Lindsay books are cheap and available. And if I have my way, they will stay that way.

SHOP THEORY

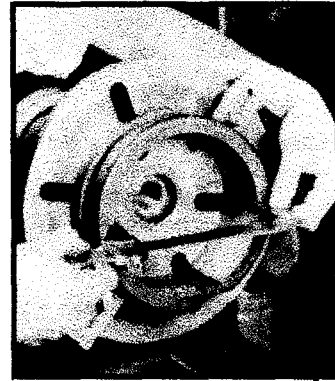
by Henry Ford Trade School
reprinted by Lindsay Publications Inc

"Eliminating all non-essentials, this book gives you a quick working knowledge of the basic tools, machines, and instruments, and the fundamental operations of machine shop work. It tells you how all the machines and tools used were developed, how they are constructed, and how to operate them. It explains heat treatment and gearing. It includes the mathematics needed for shop work, and stresses safety rules. Every step of machine shop work is pictured clearly both in text and illustration. An industry-developed shop course which already has helped prepare thousands of men for payroll jobs."

LEARN MACHINE SHOP FROM HENRY FORD!

Well, almost...

This book started out as mimeographed sheets, but so many people wanted copies that the school published the notes

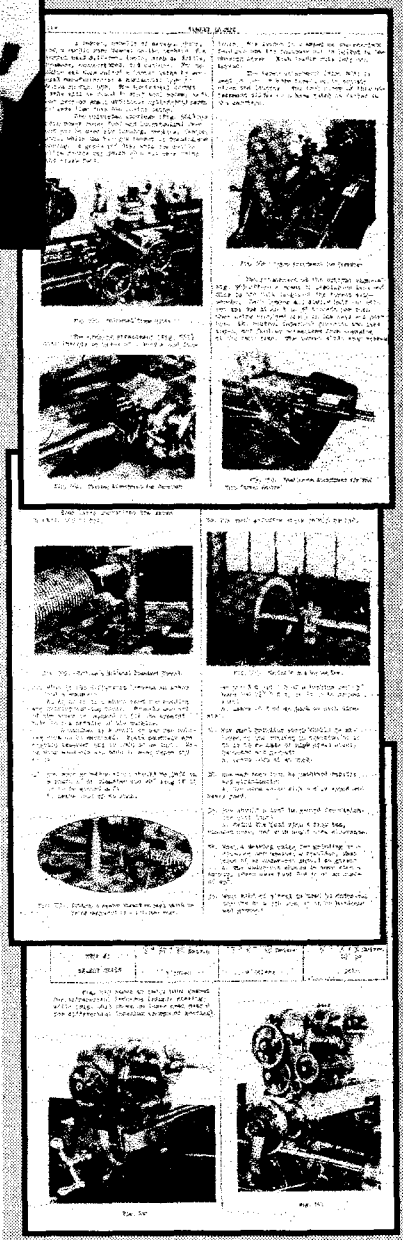


as a book. By the time this edition was release more than 150,000 copies had been distributed to schools all over the country. And it no doubt helped win World War II.

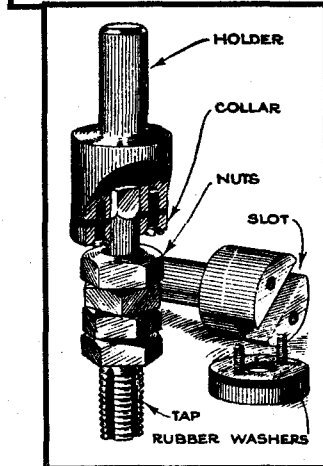
This is the entire '42 edition typewritten, loaded with drawings and photographs. Chapters include decimal equivalents, formulas, small tools, rules, micrometers, vernier gages, chisels and chipping, files and filing, soldering, shop review, drills and drilling, tapers, threads, gearing, cutting tools, shaper, planer, lathes, turret lathes, milling machine, gages and gage blocks, heat treatment, abrasives and grinding wheels, grinding machines, and routing of bench tool work.

This is a gem. There are many machine shop books on the market. Although this edition was abandoned by Ford, probably being replaced by something more modern, it is still one of the best books of its type around.

Need a good basic machine shop book? Get this one. You'll like it. 8 1/2 x 11 paperback 267 pages No. 20064 \$16.95



reprinted by Lindsay Publications



I'm sure a lot of this stuff is practically useless. So what? Even if you never use anything in this book, the short stories and dynamite illustrations will keep you entertained for hours! Great stuff. Definitely worth having. Order a copy! 6x9 94 pp
No. 21117 \$7.95

Thanks.

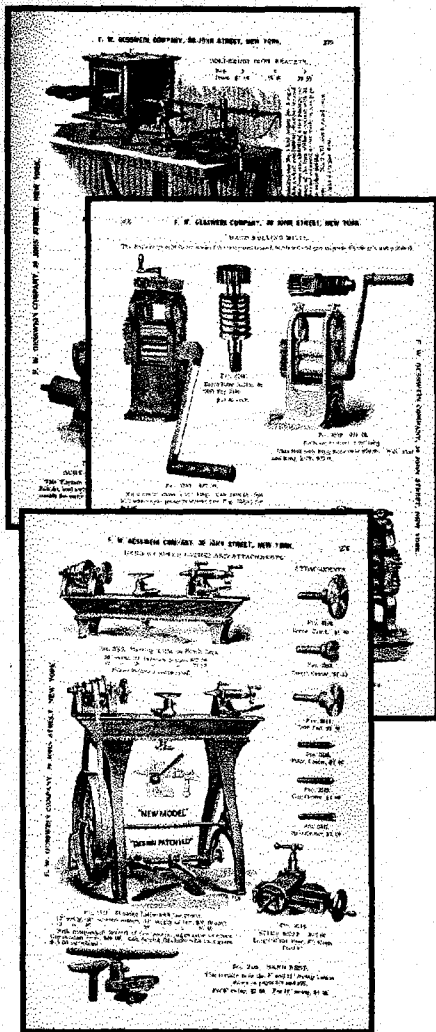
Lindsay

\$3.95

[illegible]

. But you'll also find some real gems. And just a couple of good ideas make this book worth its price. For those of us with 90 weight in our veins, it's fun reading. Get a copy! 5 1/2 x 8 1/2 paperback 251 pages
No. 4694 \$7.95

1899 Gesswein Tool Catalog!



1899 TOOLS AND SUPPLIES CATALOG F W Gesswein and Company reprinted by Lindsay Publications

This is one of the really great old time tool catalogs, one that offers everything from polishing wheels and India oil stones to hand rolling mills, laboratory balances, and crucible furnaces.

You get a 500 page catalog heavily illustrated with beautiful engravings. You'll find the usual metalworking tools such as files, milling cutters, calipers, anvils, vises and the like, but there are some things you just won't find in a hardware store today such as a Smee Battery with carbon plates or a polished iron mortar.

This is a gem of a catalog. Just take a look! I've enlarged the 4 1/2" x 7" original slightly in the reprinting process to make the small type easier to read and to maintain the quality of the engravings. It's good. If you're a tool fanatic or just like old picture books, get a copy of this. You'll like it.

5 1/2 x 8 1/2 sewn pages with leatherette cover 504 pages
No. 21354 \$19.95

WATCH-MAKERS' TOOL CATALOG

WATCH-MAKERS' TOOLS, MATERIAL AND SUPPLIES

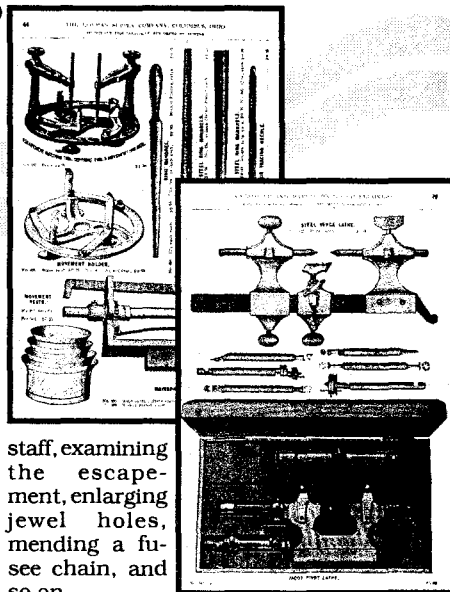
by Hofman Supply Co
reprinted by Lindsay Publications

This "Catalogue and Manual on Watch Repairing" is an absolutely beautifully illustrated catalog of tools and supplies for watchmakers published between 1880 and 1900.

You'll see tiny horn anvils, turning arbors, watch case bezel tools, blow pipes, felt case buffs, glass bench movement covers, boiling cups, counter shafts, center lathes, depth tools, pivot drills, a double-base engraving block, gravers, graver handles, Swiss and American hammers, steel verge lathe, polishing lathe, American jeweler's lathes, pliers, and on and on.

Later on you'll see Arkansas Oil Stone Powder, watch oil, Alpha Roman coloring solution, unfinished American case springs, watch parts including cases, gears, springs, pinions, ratchet bridges, and much more. You'll see lots of watchmakers' spectacles, magnifying glasses, and other miscellaneous trade items including foot powered jig saws, lathes, show cases, and more.

The last 25 page section is entitled "Hofman's Manual on Watch Repairing" which includes taking down a watch, cleaning watches, repair of escapement watches, drilling, new pivots, making a new balance



staff, examining the escape, enlarging jewel holes, mending a fusee chain, and so on.

The original is printed on thin yellowing paper that is not very opaque. Ink on the opposite side of the page is slightly visible, making it tough to reproduce. But it turned out very well. If you're into horology, love tools, or just like to look at "pitchers", this is a must have. Order one. 6x9 paperback 162 pages

No. 21290

\$9.95

HARDCOVER EDITION

No. 21303

\$16.95

1882 Watchmakers' Handbook

WATCHMAKERS' HAND-BOOK

by Claudius Saunier

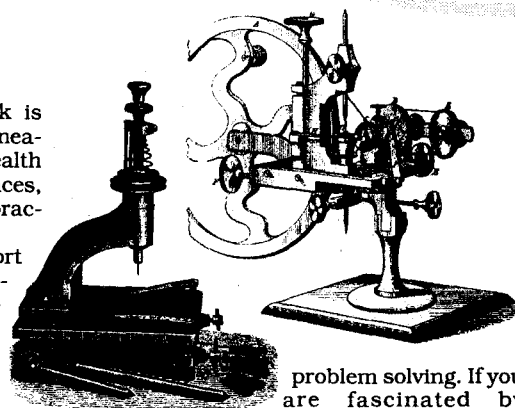
reprinted by Lindsay Publications

Saunier's beautiful 1882 handbook is divided into six parts: geometry and measurement, materials used in horology, health and manipulation, tools and appliances, repairing and examining watches, and practical receipts.

Within each part are numerous short "chapters" that will teach you a particular skill such as tempering steel, bronzing, polishing brass wheels, use of a file, use of a graver, and more. You'll be introduced to all the tools a watchmaker could want: files, pliers, the lathe, Boley turns, chucks, ferrules, chamfering tools, stud tools, dividing plate, screw-plates and taps, mill cutters and much more.

You'll learn about the Geneva movement, putting a watch together, the English movement, timing a watch, timing a clock, how to demagnetize a watch, and much more. You'll get practical hints and tips such as making the barrel and cover, making and repairing stopwork, repairing a barrel arbor, adjusting a fusee, polishing pinion leaves, and more. You'll get discussions on pivots, escapements, pallets, enamel dials and their fabrication, hands, glasses and much more.

Although this will not tell you how to build a watch step-by-step, it will teach you all the basic skills and tricks of the trade. It is an old time watchmaker's reference for



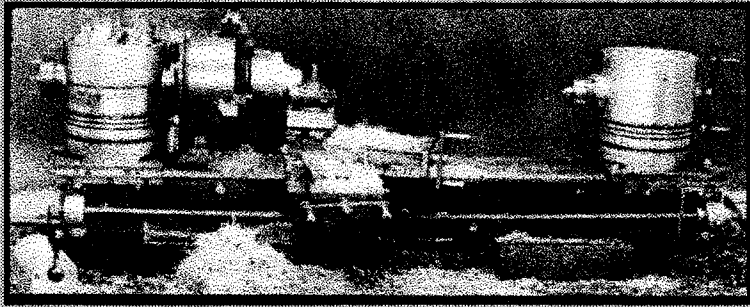
problem solving. If you are fascinated by watches and clocks, then you'll certainly want a copy of this almost impossible-to-find book. The rest of us can learn precision techniques and finesse that will never be found in the blacksmith shop.

This is a fun book to read. You'll find a surprising number of great old engravings of tools and machinery. Get one and enjoy it. 5 1/2 x 8 1/2 paperback 482 pages plus 26 additional pages of mechanical drawings
No. 21184 \$19.95

HARDCOVER EDITION

A small fraction of the new case bound for the libraries. If you don't know how long it will be available.
No. 21184 \$28.95

NOT AVAILABLE



BUILD A METAL LATHE!

METAL LATHE

by Ben Fleming

You can build a precision lathe without castings that has almost a 10" swing over the three foot bed. And you can do it with little more than hand tools and a small drill press. A 3' bed provides about 22" between centers, but the bed can be extended several feet if you want. Four speeds are provided on the prototype. You get a compound rest, and a cross slide with about 4 1/2" of travel.

Ben writes in his manual, "No outside machining is required. The lathe is bolted together for all parts but three, which are brazed or welded together . . . The only 'precision' tool I used in the lathe construction was a good quality framing square. Using the construction methods as outlined in these plans, I was able to produce a lathe that, on its first test, showed only a .007 error, and with a few simple adjustments, can be brought close to a tolerance of .001."

Dave Gingery and Ben Fleming swapped ideas from the beginning. Dave comments, "His plan answers very well to

the man who wants a larger lathe. Well thought out project, and within the ability of the average do-it-yourselfer, I think."

Cost of the prototype was \$185. One of Fleming's design tricks is the use of large truck pistons instead of castings.

You get a detailed 49 page construction manual. You'll get recommendations, step-by-step instructions, hints and tips, as well as addresses of suppliers for tools and any special parts that you might need.

There is no provision for power feed on the lead screw, and therefore, this is not a screwcutting lathe. But by the time you build a copy, you might have figured out an ingenious way to add it. Even so, this is a powerful, precision lathe that can turn out quality work for you.

Following the text are many photos and layout templates to make the construction fast and easy. A fine lathe. Consider building one. At the very least put this book in your library. 8 1/2 x 11 paperback 49 pages well illustrated
No. 1212

\$9.95

Build a Metal Disintegrator

METAL DISINTEGRATOR

by Ramah Machines

When you snap off a drill, tap, or even a stud deep in a block of steel, you're in trouble. It's a first class pain in the neck to remove it. But it's easy with this metal disintegrator. Essentially this is an vibrating engraver driving a commercially available electrode into the metal. An electric spark eats away the metal, leaving a clean hole.

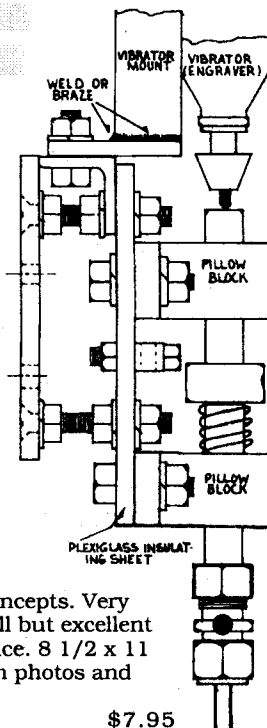
At first you might think that such a machine is an awfully elaborate solution to a infrequent problem. But the beauty of this machine is that it is the first cousin of ECM machines — those high tech devices that perform machining miracles. This might be a starting point for the development of a small home shop ECM machine.

The disintegrator is built from commonly available materials. A lathe or milling machine is not required. You get details on assembly of the

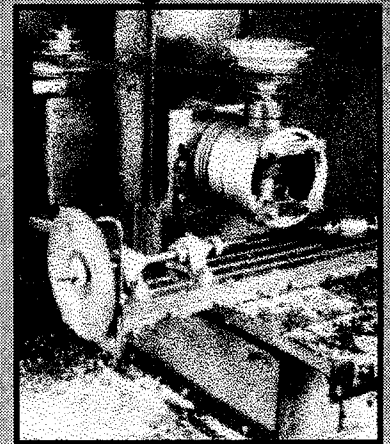
vibrating head, electrode selection, fabrication of water flow device, power supply, and much more. The prototype cost \$275.00 with new equipment, and that's a lot less than \$7000 for a commercial unit.

Again, if you don't need a disintegrator, the ideas and info here should be useful in investigating ECM concepts. Very unusual device. Small but excellent booklet. Worth its price. 8 1/2 x 11 booklet 34 pages with photos and drawings.
No. 1277

\$7.95



Build A Vertical Milling Machine



VERTICAL MILLING MACHINE

by Ramah Machines

The proven construction techniques used in the "Nephite" lathe project have been used to build a powerful, precise vertical milling machine. The universal milling 6" wide 4" high table that you will build will provide 13" X travel and 6 1/4" Y travel. And the table will allow milling at angles. Tests show that the maximum thickness of material that can be milled is 6 to 7". Four spindle speeds are provided with an optional high-low range. Max depth of cut in mild steel with a 3/8" four flute end mill was .035". A 1/2" two flute mill in aluminum cut .220" deep. Max height of the machine is 37" and weighs in at about 260 pounds. It uses a 1/4 to 1/2 hp motor.

You'll need a lathe to machine the spindle, but other than that all you'll need is the usual drill press and hand held electric drill, plus the usual hand tools. No castings.

A lot of valuable information for a very low price. What would it cost to buy a mill? How many hours would you waste perfecting your own design? It's worth it. Order a copy today.

8 1/2 x 11 booklet about 85 pages.

No. 1209

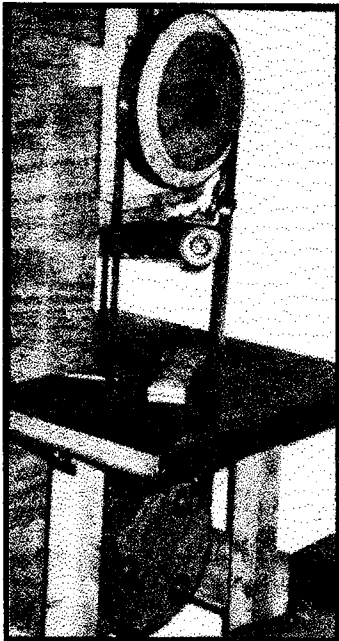
\$9.95

MONEY MAKER!

Mr. Lindsay:

I built Benjamin Fleming's metal disintegrator and use it often. I work as an automotive machinist and broken bolts are an occupational hazard. I still drill them out. (When you're good, you're good.) But those that clumsy mechanics have broken off — taps, drills and (the notorious) easy-outs — are no longer beyond salvage. I fire up the "tap burner" and before you can say "thanks, Mr. Fleming", it's out. I then get to say "that'll be \$25.00", which is half the going rate, and split the take with the boss. So far, this machine has paid for every book I have gotten from you and I hope to make it build a much bigger library...

J. I., Fort Worth TX



Build a Metal Cutting Bandsaw

How to Build a METAL CUTTING BANDSAW
by David Wimberley

Build a bandsaw powerful and sturdy enough to cut metal to precise dimensions. A good bandsaw can simplify many metal projects, and often make otherwise impossible projects feasible.

Wimberley will show you how to build this saw out of wood. It works amazingly well. Detailed plans will show you every step from making and truing the wheels to building

the frame. You need no unusual tools. For instance, he'll show you how to turn the wheels and crown them without the use of a lathe.

This machine has 7 1/2" wheels which move a 1/2" blade. Ball bearing blade guides twist the blade as it passes through the table allowing you to make extra long cuts. Although the throat is not adjustable because of the twisted blade, the saw can cut heavy material beautifully. The table does not tilt. Dozens of detailed drawings show you all the tricks of building every part of the saw from motor drive mechanism to wheel tilt and tensioning equipment.

Get a copy of this. Great how-to! It will make a valuable addition to your shop. Great plans to build from or adapt. 5 1/2 x 8 1/2 booklet - jam packed - 22 pages
No. 891

\$4.50

Build a Flame Cutter

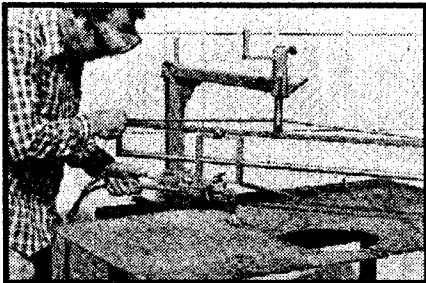
HOW TO BUILD A RADIAL ARM FLAME-CUTTER
by Richard Walker

You can use this flame cutter to make perfectly straight, exact right angle, or bevel cuts in thick steel plate. You can cut perfect circles although freehand spotting of the center takes a little time. You won't get a dead smooth cut like you will with an expensive motor driven unit, but this unit only costs from \$15 to \$100 to build!

This will take some skill to build: cutting, drilling, tapping, welding and some machining. This project is meant for experienced amateurs and professionals, so it could be tough for a raw beginner. You get excellently drawn plans, great how-to and lots of photos. Great addition to the well-equipped shop. 7 x 9 booklet, 20 pages.

No. 1255

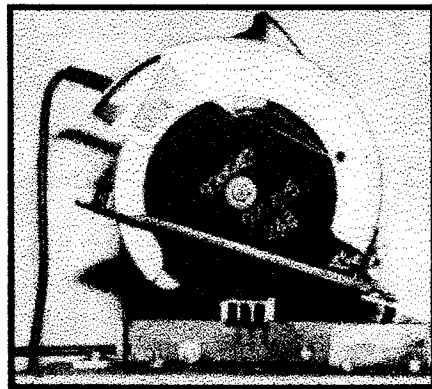
\$8.95



HOW TO BUILD AN ABRASIVE CUT-OFF SAW ATTACHMENT

by Kenneth Dixon

Using little more than angle iron, a sheet of plywood, and an abrasive cutoff disc, you can turn the portable circular saw you usually use on carpentry jobs into a powerful metal cutting saw. Dixon will show you how to build the hinge device that bolts to the saw's frame, and



How to Build an Abrasive Cut-off Saw

the vise clamp that holds the work securely for cutting. Although the plans show dimensions for his own saw, Dixon shows you how to tailor the plans to fit yours.

Save your arm! If you already have a saw and some angle iron, you can build a powerful new tool for just a few dollars. Like any power saw, an abrasive cutoff saw can be dangerous. But you'll be shown how to use the machine safely. The author's model has been used successfully without incident for quite some time now.

Build one! It's so easy, you're almost foolish not to! Low cost, detailed plans with drawings, dimensions, how-to and photos. Get a copy. 5 1/2 x 8 1/2 booklet 14 pages.
No. 890

\$4.00

Build a 26" Scroll Saw!

BUILD A 26" SCROLL SAW

by Sun Thrift

"A scroll saw in the 26-inch size can be an expensive item to purchase but you can build a rugged and very useful machine by following this plan, at a fraction of the cost. All materials may be obtained locally and all connections are made with bolts or screws, eliminating the need for any special castings or welding."

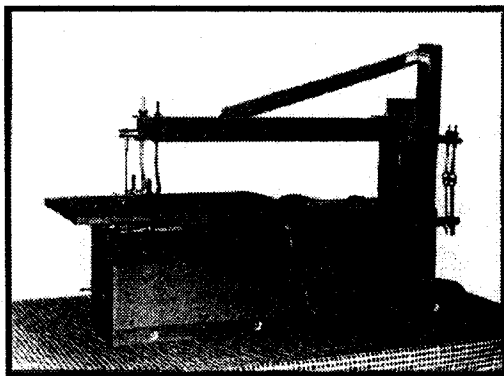
You'll find this saw uses common 6 1/2" pinned-end coping saw blades which are inexpensive and available almost anywhere. Most of the machine frame is built of 2x4 fir lumber. Angle iron, threaded rods, drill rod and other commonly available stock is used to build the rest of the machine.

Specifications: 26" maximum throat, single speed, bench model scroll saw. 0-45° table tilt. 12" by 20 1/2" table. 860 strokes per minute with recommended sheave diameter ratio. Stroke adjustable from 3/8" to 3/4". 2" maximum depth of cut. Uses 1/4 hp motor 1725 rpm CCW rotation. Driveshaft bearings are self-aligning 1/2" diameter-bronze sleeve or ball.

You get text, parts list, photographs, and a full set of excellent plans along with recommendations and precautions for use of the completed saw. Excellent plans. Reasonable price. 8 1/2 x 11 stapled sheets 19 pages.

No. 1259

\$10.95



INDEX!

INDEXING

reprinted by Lindsay Publications
Most of this booklet, reprinted

from a 1903 technical school textbook, covers indirect compound indexing, the method that will give you the greatest flexibility and the greatest number of options.

You'll learn about construction of the indexing mechanism, calculating runs of the index crank, selecting the index circle, using the sector, using index tables, calculating the moves for compound indexing, and simplifying the moves. The math used is simple fraction arithmetic.

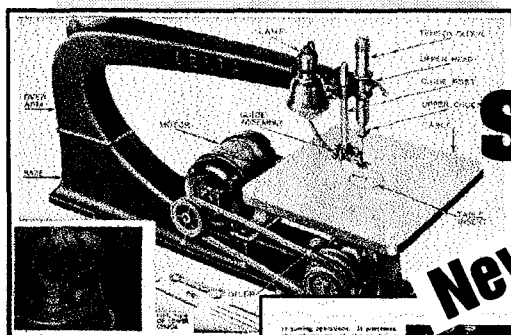
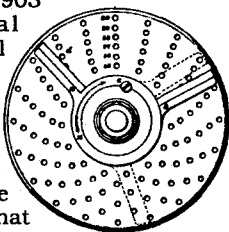
The second section covers the use of the spiral head which at that time was an innovation marketed by Brown & Sharpe. You'll see the improvements in gearing, what effect rotating the index dial has, and you'll get an excellent explanation of the numerous indexing tables provided.

A final section covers fractional indexing using two indexing plates and special spiral head. Three more pages of indexing tables are provided.

Some of the information should be quite useful to you. Some will not, but even so, what you learn should expand your knowledge to allow you to make more creative use of the dividing head you do have. Loaded with valuable info! Reasonably priced! Get a copy today 5 1/2 x 8 1/2 booklet 31 pages
No. 869 \$3.50

DO YOU WANT TO RECEIVE FUTURE CATALOGS?

Because of the enormous expense of printing and mailing catalogs, we are forced to mail catalogs to only those people who are interested in receiving them. The best and only sure-fire way you can be assured of getting future catalogs is to order books. And that make sense. If you can't find at least ONE book in this catalog that interests you enough to order, then there's little reason to continue sending catalogs. So order today, and we'll new catalogs as they are printed!



New!

BAND SAW! SCROLL SAW!

GETTING THE MOST OUT OF YOUR BAND SAW AND SCROLL SAW

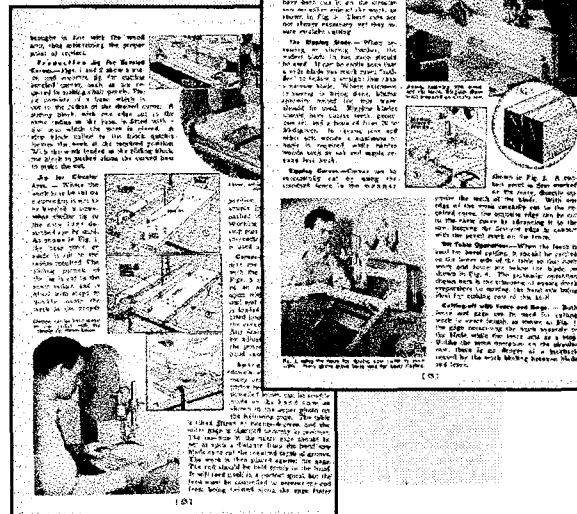
edited by Sam Brown
reprinted by Lindsay Publications

From 1937 comes this handy little booklet from Delta Manufacturing showing you how to use their band saw and scroll saw. You get a very heavily illustrated booklet of wall-to-wall how-to.

Chapters include the band saw, band saw blades, methods of working, metal cutting, scroll saw, scroll saw operations, sanding and filing and appendix.

You'll learn all the basic uses and techniques such as multiple sawing, ripping lumber, cutting thin metal tubing, aligning blades and much more. You get ideas for building jigs and supports, and even simple projects. Admittedly, this book is primarily for wood workers, but after seeing this, I'd really like to buy or build a large scroll saw. I might even saw out a profile of my mother-in-law's nose. (But I don't think they make sheets of plywood that big...)

Get a copy. Enjoy. Fun reading. Ideas. Low-cost. Order a copy today. 6x9 booklet 48 pages
No. 21559 \$5.95



ABRASIVE TOOLS!

GETTING THE MOST OUT OF YOUR ABRASIVE TOOLS

edited by Sam Brown
reprinted by Lindsay Publications Inc

This 15th edition originally published in 1939 by Delta Power Tool Company is "a complete manual covering the use of abrasive tools in the home workshop, illustrated with over two hundred photographs and line drawings."

Twelve chapters include abrasive tools, abrasives, operating the belt sander, operating the disk sander, general grinding, how to sharpen tools, grinding shaper cutters, grinding twist drills, buffing and polishing, how to use sanding drums, how to use cut-off wheels, and miscellaneous abrading operations.

Most of this beautifully illustrated booklet covers abrasive tools for woodworking, but metal workers will find it useful, too. You learn how to choose abrasives, mount them, use the machines, build jigs for use with the abrasive machine and so on.

You'll learn how to do general grinding, sharpen wood turning tools, make and sharpen knives for wood shapers, sharpen twist drills with simple grinding wheels, how to polish using both homemade commercial wheels and much more.

This is a great little booklet to have. And considering the price, it's one you can't afford to be without. Order a copy today! 6x9 booklet 40 pages, well illustrated
No. 20625 \$5.95



870-Year-Old Secrets of Paint, Glass, Metal!

ON DIVERS ARTS

by Theophilus

translated by Hawthorne & Smith

Theophilus probably wrote this in a Benedictine monastery in Latin on parchment about 1120, long before the printing press. What he wrote about was the creative technology of the day.

You can learn the tricks and techniques of painting, working glass, and working metal. You get details on mixing pigments for various hues, working gold and tin leaf, applying leaf to books, making ink, making glass, details of the furnace, the composition, spreading out glass sheets, making long-neck flasks, coloring glass, gutting, annealing, glass molds of iron, assembling windows and much more.

In metalworking you learn about anvils, bellows, hammers, engraving tools, punches, files, hardening files, crucible for gold and silver, milling gold amalgam, setting gems and pearls, refining copper, separating gold from silver and copper, and much more.

Each section is short, but gives the essential details. The original illustrations have been reproduced. Also included are photos of typical work from 1100's. This is a beautiful combination of solid technology, myth, and folklore, just as it was. An unusual book. Lost secrets! Interesting reading. Reasonably priced. 6 x 9 paperback 45 illustrations. 216 pages.

No. 160

\$8.95

Classic 1556 Mining & Refining Book!

DE RE METALLICA

by Agricola

translated by Herbert Hoover

President Herbert Hoover and his wife translated this 1556 mining book from Latin in 1912. And what a book it is!



From the text and more than 300 original woodcuts you will learn 16th century mining and refining techniques. You'll learn about finding veins of ore, opening mines, and refining iron, lead, gold, bismuth, antimony, cadmium, cobalt, copper, silver and tin. All the ancient skills are revealed.

Thumbing through this incredible volume is like rediscovering a long lost volume hidden in some re-

remote corner of an abandoned library. It's a little tough to read in places probably because it was written over 400 years ago. But you'll like it. Quite unusual! A true classic! Order a copy! 7x11 paperback 638 pages
No. 1132

\$18.95

INVENT!

HOW TO BE A SUCCESSFUL INVENTOR

by Gordon D. Griffin

The author holds 27 patents will show you how he went about creating his inventions and getting them to market. He'll do that by teaching you marketing, about pricing, license agreements, patents, patent attorneys, infringement and lots more.

Don't be one of those boneheads who thinks just because you have a patent, you're gonna be rich. That's pure B.S. What you need is a great invention, and you need to know how to sell it or license it to someone who can get it to market. If that necessitates a patent, then you'll get one. What the author will tell you is how to make money from your invention, and that's much tougher than getting a patent.

The ten chapters don't have titles but include numerous sub-chapters with titles such as simplest of inventions, the problem with over-secretive inventors, education needs, left-brain inventing, licensing large companies, mail-order sales, basic license agreement, patent attorneys, applying for a patent yourself, and on and on.

This is an excellent book filled with meat. Lots of details, examples and advice from someone who has done it! ... many times! Get one! 7x10 paperback 236 pages
No. 5004

\$19.95

GLASS AND GLASSMAKING

by Roger Dodsworth

Explore the world of that unusual non-crystalline super-cooled

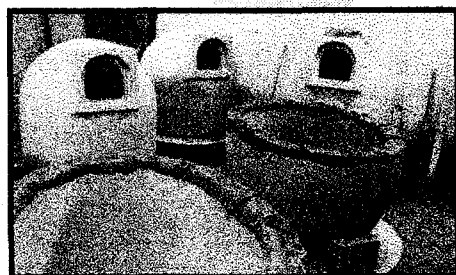
Glass!

liquid we call glass. (No, glass is not a solid.) This great heavily-illustrated British booklet will take you through early history, glassmaking through 1800, the British glass factory in the early nineteenth century, the Victorian age, conditions and traditions, and finally to glass in the twentieth century.

Not only will you travel back to see furnaces of Venice in the 1500's, you'll see a modern float glass factory and lots of furnaces and craftsmen in between. Of course, you'll see great artistry in glass in the form of sculptures, wine-glasses, jugs, and more.

Great booklet. Interesting reading. Unusual. From England. 6 x 8 1/2 booklet 32 pages
No. 1346 \$5.00

(Comes from England.
Supply may be unpredictable.)



Handbook of

HANDBOOK OF MECHANICAL DESIGN

by Nordenholt, Kerr & Sasso

reprinted by Lindsay Publications Inc

Designing machines can be a lot of fun, and there a lot of books that will teach us a theoretical approach. And there are other books that teach far-out high-tech design. But how many of us need to design a payload adapter ring for an Atlas-Agena rocket? A simple clamping bolt or a simple labyrinth shaft seal is more my speed, and a great deal more useful.

This gem of a practical design handbook appeared in 1942, and was essentially a reprint of practical design articles from *Product Engineering* magazine. You get practical design ideas, variations, bits and pieces, hints and tips, basic formulas, and even electrical information for getting the job done. The theory you get is practical and straight to the point.

Chapters include charts and tables; materials; beams and structures; latches, locks and fastenings; springs; power transmission elements and mechanisms; drives and controls; and design data on production methods.

You get charts and nomographs for calculating useful things like

finding the length of material needed for 90° bends (such as electrical conduit). Or volumes (in gallons) of horizontal round tanks with flat ends. Or for calculating the weight of a certain number cubic inches of brass (or vice versa). And much, much more.

You get data on alloys from simple old gray iron to stainless. Although I'm sure some of this is dated, it's not totally useless. You get a detailed chart of "Characteristics and Uses of Wrought Brasses and Bronzes." You get another chart on the plastics of that day. And much more.

You can calculate stress on aluminum sheets, compression members, shear members, diagonal tension webs, hollow girders, stresses in cantilever beams, and more.

Then you get a picture section illustrating various ideas and variations for locking devices, retaining and locking detents, taper-pin applications, hinges and pivots, clamping shoes and plugs, lock bolts, machine clamps, door and cover fasteners and more.

You'll learn about various types of springs, their natural frequency, design calculations, standard drawings, graphs to simplify calculations and more.

The power transmission section will help you with simple calculations to size components in your transmission set up. You also get page after page of fascinating drawings illustrating couplings, clutches, gibs and guides, bearings, change gears, automatic feed hoppers and more.

The chapter on drives and controls will be quite informative to anyone who lacks electrical knowledge (most of us). Here you explore types of motors and their characteristics from starting to running under full power. You explore various types of three phase motor

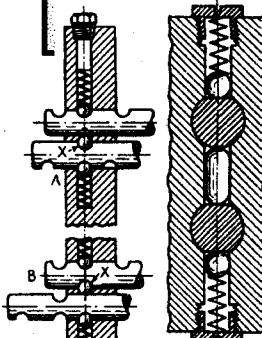
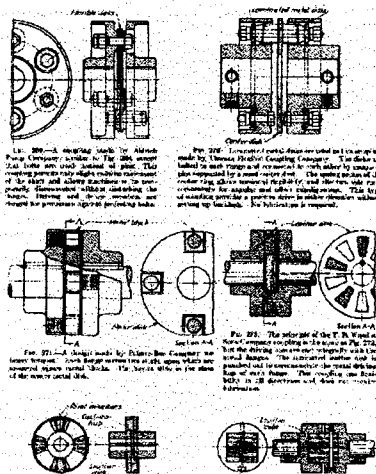
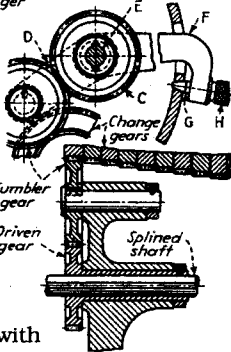
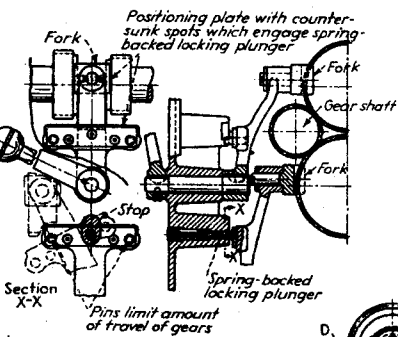
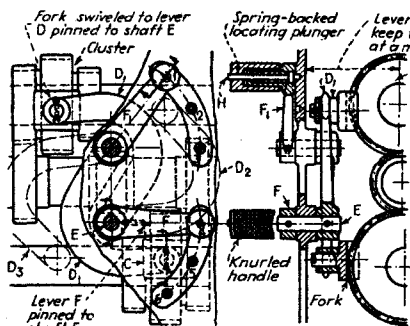
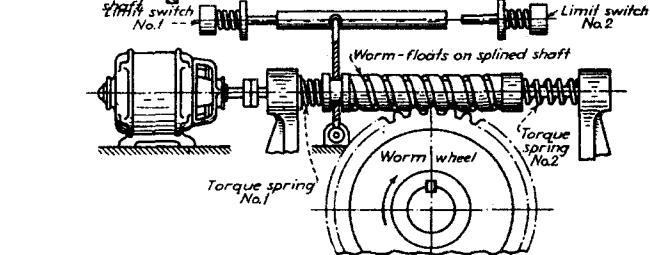
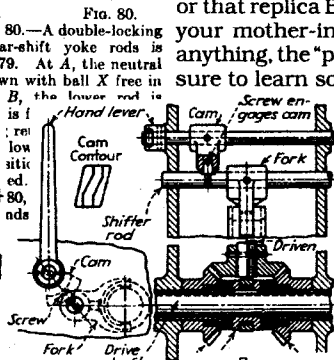


FIG. 79. FIG. 80.

FIGS. 79 and 80.—A double-locking device for gear-shift yoke rods is shown in Fig. 79. At *A*, the neutral position is shown with ball *X* free in the hole. At *B*, the lower rod is



New!

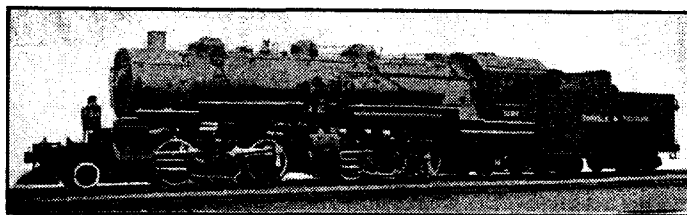
POWER TRANSMISSIONS ELEMENTS AND MECHANISMS 103

Practical 1942 Illustrated How-To

windings, simple rectifier circuits for changing AC to DC, and control equipment (most of which I'm sure has been replaced by new technology), and more.

The last chapter covers production methods for fusion welding, resistance welding, furnace brazing, flame hardening, centrifugal casting, permanent mold casting, die-casting, forging, flame cutting and powdered metal pressings.

I think you'll find something useful here no matter what kind of machine you want to build whether it's a lathe or tool post grinder or that replica B-17 you want to build to bomb your mother-in-law. Even if you don't build anything, the "pitchers" are "purdy", and you're sure to learn something no matter what page you open the book to. In other words, this is a fun book to browse through. Get one! 8 1/2 x 11 paperback 277 pages No. 21540 \$19.95



LOCOMOTIVE VALVE GEAR

LOCOMOTIVE VALVES & VALVE GEARS
with a Special Treatise on Valve Setting
by Yoder & Wharen

"An explanation of the construction and action of the plain slide valve, the piston valve and the gears which operate them, as applied to locomotives."

Getting a steam engine to run isn't all that hard. Getting a steam engine to purr along at high efficiency is another matter - a matter solved only by intelligent use of sophisticated valve gear. Here you get the details of valve gear used on railroad locomotives in 1917.

Chapters include locomotive valves and valve gears, the Stephenson valve gear, the

gear, and the Gooch stationary link.

Most valve gear books I've seen are loaded with geometric drawings teaching the design of the gear. Geometry is important, but this is somewhat different in that it is loaded with great views of locomotives, cross sections of valves and pistons, and detailed drawings of the gear. In other words, this isn't so much

theory of design, as it is a handbook for locomotive shop men in keeping their engines running efficiently.

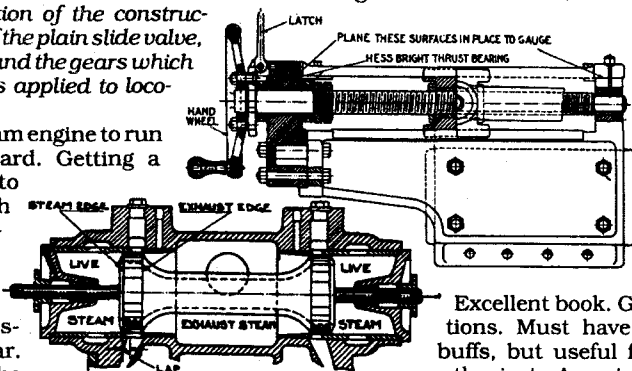


FIG. 32.—Piston Valve, Outside Admission.

Excellent book. Great illustrations. Must have for railroad buffs, but useful for all steam enthusiasts. A reprint of an American book produced in England for British steam buffs. Get a copy!

5 1/2 x 8 1/2 hardcover 272 pages

No. 1344

\$23.95

CATECHISM OF THE STEAM ENGINE!

NEW CATECHISM OF THE STEAM ENGINE

by N. Hawkins, M.E.

reprinted by Lindsay Publications Inc

I've reprinted this turn-of-the-century bible on steam power at the suggestion of a number of people. It's really great.

You'll find page after page of illustrations, usually great old engravings, and detailed technical description on every conceivable steam power device from Corliss, McIntosh & Seymour, and Porter-Allen engines, to Conover independent jet condensers, steam road rollers, Baldwin Locomotives, and steam fire engines. You'll see everything from hoisting engines to air and refrigeration compressors.

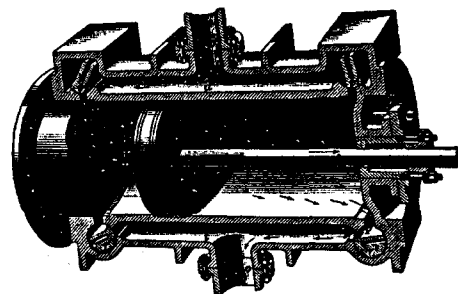
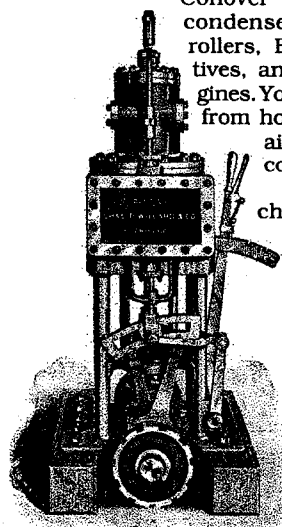
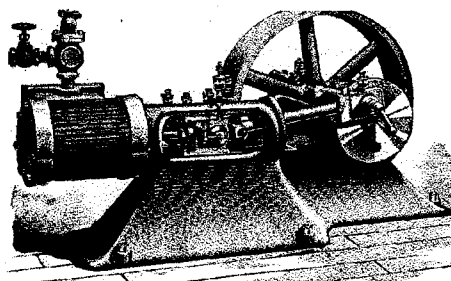
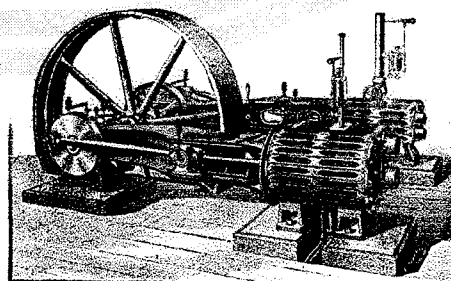
You even get chapters on gas, oil and hot air engines. You'll see engravings and cutaway drawings

of the Otto gas engine, the Simplex naphtha engine, the de LaMater-Ericsson hot-air pumping engine, de LaMater-Ryder hot air engine, and others.

Original copies of this 1904 master reference are not easy to find, but you can have your own personal copy for much less than the cost of an original. This is a "must have" book for any steam enthusiast. Wall to wall illustrations! You'll like it. Order a copy today. 5 1/2 x 8 1/2 paperback 437 pages

No. 4619

\$15.95



STEAM ENGINE DESIGN

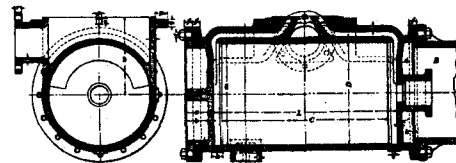
STEAM ENGINE DESIGN

reprinted by Lindsay Publications

You can build simple steam engines from castings or stock material, make them run, and have a lot of fun. But just because your engine runs does not mean that it is a quality engine. If you want something more than just an engine that runs, one that provides reliability, power AND efficiency, you need to learn how to design one from an 1896 engineer.

In the first section you'll learn the basics: all the components, how they fit together, and how they work. Then you'll learn about the choices and tradeoffs that must be made concerning expansion, valving, boiler pressure, piston speeds and more. Then you start plugging numbers into the formulas to come up with back pressure and point of exhaust closure for simple engines and engines with single swinging eccentrics.

Walk through calculations for simple, non-condensing engines, high speed automatic cutoff engines, hoisting and locomotive engines, and multiple-expansion engines.



Calculate in detail the proportions of the cylinders, steam ports and passages, dimensions of the steam chest, Corliss engine cylinder proportions, diameter of the drive shaft, size of the journals, crankpins crankshaft counterbalances, and on and on.

The last section will show you how to design crossheads for a variety of engines, eccentric rods, stuffing boxes, flywheels, sample proportions for existing successful engines and more. There's so much nitty-gritty detail here, that it will take you days and weeks to work the design out on your calculator, think about it, revise it, and build it.

Don't expect to become an expert engine designer just by reading this book. But you will learn secrets and techniques that haven't been taught in almost a century. This is a great book on an unusual subject! A MUST book for steam buffs, mechanics and historians. Reasonably priced. Order a copy.

5 1/2 x 8 1/2 paperback 192 pages

No. 4104

\$9.95

MODERN STEAM ENGINES

**An incredible 1887 steam engine
by famous mechanical engineer!**

MODERN STEAM ENGINES

by Joshua Rose, ME

reprinted by Lindsay Publications

Wow! Wadda book! This'll grab ya. How useful is it? Not very unless you're a steam power fanatic, and in that case you'll HAVE to have this. For the rest of us, it won't help us tune up the lawnmower, unplug the kitchen sink, or cure our ingrown toe nails, but this is a gem of a book that machinery book collectors drool over. And you will, too.

The title is outrageously long:

"Modern Steam Engines: an elementary treatise upon the steam engine, written in plain language; for use in the workshop as well as in the drawing office. Giving full explanations of the construction of modern steam engines; including diagrams showing their actual operation; together with complete but simple explanations of the operations of various kinds of valves, valve motions, and link motions, etc., thereby enabling the ordinary engineer to clearly understand the principles involved in their construction and use and to plot out their movements upon the drawing board."

Joshua Rose was one of those stellar mechanical engineers of the late 1800's to whom everyone looked up. He wrote *"The Modern Machinist"*, *"Mechanical Drawing Self-Taught"*, *"The Pattern Maker's Assistant"*, *"The Slide Valve"* and the astounding monster two volume *"The Complete Practical Machinist"* — a reference that makes this incredible book (and every book in this catalog) look tame.

This large format book contains twelve untitled chapters that include such topics as cylinder ports, cushioning and its effect, the effect of rock-shaft upon the action of a common slide-valve, crank-pin and piston movements, diagram of valve motion, when a slotted cross-head is used instead of a crank, Stephenson's link motion, the link in mid-gear: action of the parts, increase of lead due to moving the link from full gear towards mid-gear when a rock-shaft is employed, the adjustable cut-off engine, Porter-Allen engine, uniformity of fly-wheel velocity, action of the auxiliary springs in the Buckeye Governor, construction of the Dexter governor, the Reynolds Corliss Engine, the dash-pot of the Wheelock engine, Farcot's compound engine, the condensing engine, the Bulkley independent condensor, the vertical compound condensing engine, the marine engine, principles of construction of the Joy valve gear, the Frick traction engine, the rotary engine, the Ingersoll rock drill, the Worthington steam pump and much, much more.

Remember! Rose was an engineer, and this book was intended to teach the mysterious details about engines that you couldn't pick up on the job. About half the book is dedicated to valves, to their gear, and to adjustment. As you know, valve gears were the heart of engine operation, and Rose was out to teach engineers what he thought they should know.

Many of the *"four hundred and twenty-two engravings"* illustrated deal with valves and valve gear, but the rest will show you stationary, marine and traction engines in use in 1887, their internals and their auxiliary equipment. I don't consider myself a steam fanatic, but even I get a charge "just lookin' at da pitchers..." It's great.

Again, this is expensive. I've had this for a while, and have been debating whether or not to reprint it because of the enormous expense of turning out so few copies. But I think it's worth the risk. Steam fanatics must have it. The rest of us will enjoy it. Rare book! Back in print. Consider it.

8 1/2 x 11 paperback 322 pages
No. 21214

\$26.95

HARDCOVER EDITION

A small fraction of the original edition will be available.
No. 21 **NOT AVAILABLE** edition will be available.

\$34.95

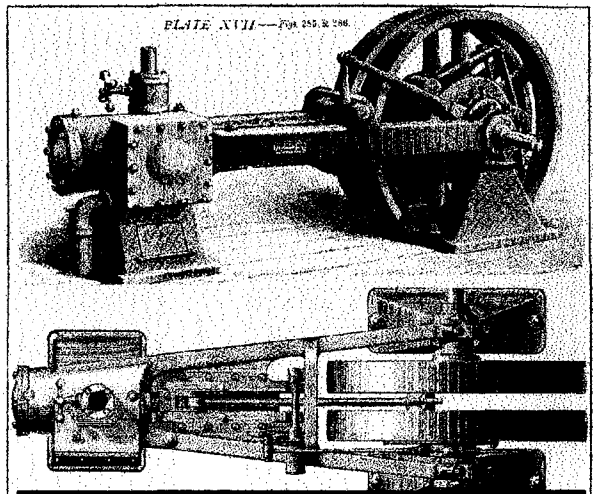
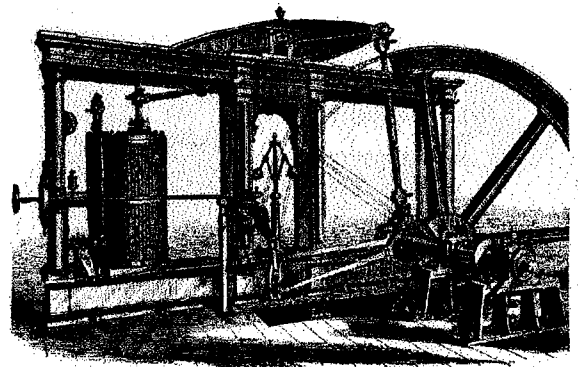


PLATE XVII — Figs. 255 & 256.
Vertical Compound Condensing Engine.
In this engine a double acting barbet pump serves for both the elevating and the air pump, the construction being as follows. The condenser is at the base of the beam, the pump being worked from the engine cross-head by means of levers A and B. The pump is divided into two compartments, each having its own pair of valves, of which the lower of each pair is in the suction, and the upper the delivery valve; the lower pair are for condensation and the upper for the air pump, serve each of them in single action while the pump barbet is in double action, affecting one compartment in its action.

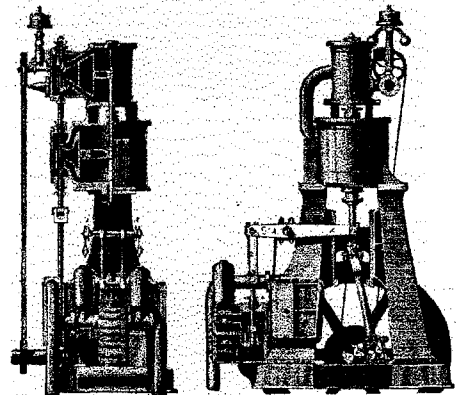
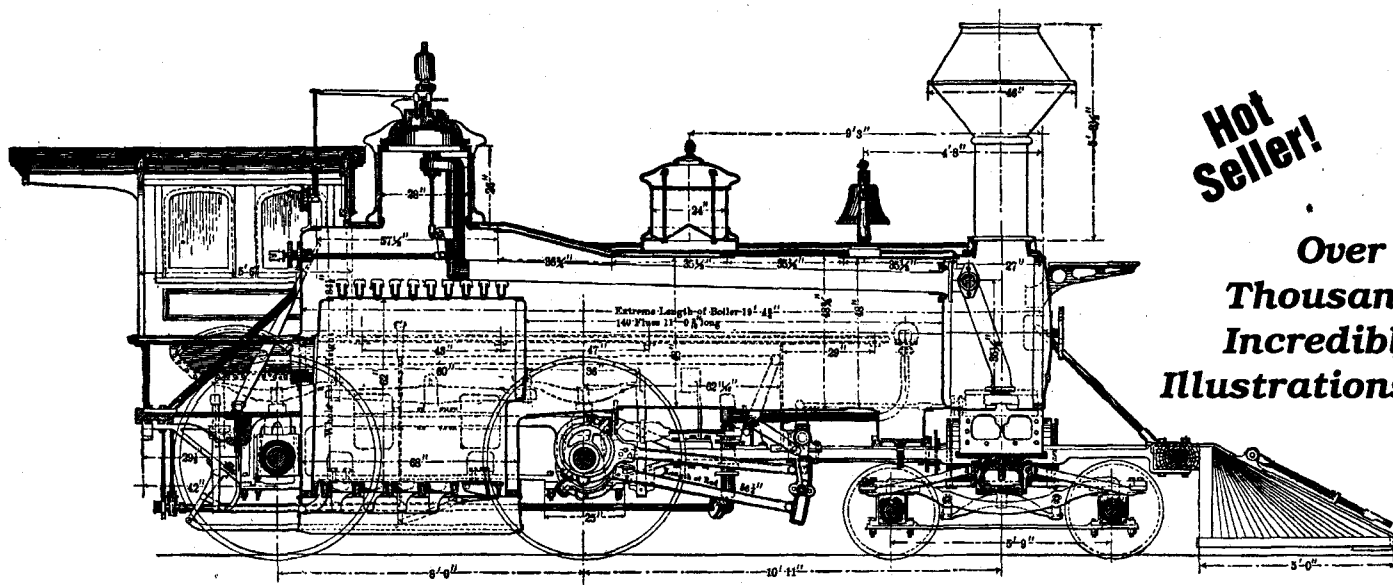


Fig. 255.
In this engine a double acting barbet pump serves for both the elevating and the air pump, the construction being as follows. The condenser is at the base of the beam, the pump being worked from the engine cross-head by means of levers A and B. The pump is divided into two compartments, each having its own pair of valves, of which the lower of each pair is in the suction, and the upper the delivery valve; the lower pair are for condensation and the upper for the air pump, serve each of them in single action while the pump barbet is in double action, affecting one compartment in its action.

Loaded with Great Engravings!



**Hot
Seller!**

**Over a
Thousand
Incredible
Illustrations!**

Modern Locomotive Construction

MODERN LOCOMOTIVE CONSTRUCTION

by J G A Meyer

Build yourself a locomotive! Meyer was an associate editor of *American Machinist* magazine, a member of the ASME, and chief draftsman for the Grant Locomotive Works. If any one could take you by the hand and show you how to design an 1892 locomotive from the ground up, he could.

You learn every aspect of design and construction with over a thousand illustrations, most of them being incredibly detailed working drawings. You get detailed how-to knowledge that can only be acquired from working in the industry.

For instance, Meyer discusses milling special grooves in order to remove pressure from the back of the slide valve. Into the grooves are placed metal strips supported by springs. Meyer will tell you the master mechanics in the roundhouse disliked spiral springs because lubricating tallow would build up there. Elliptic springs solved the problem but lost their strength over time and created other unique problems.

You get that kind of detail and insider information throughout this big volume. Who on earth needs to know about the effect of lead counterbalance in the rim? ...or that bearing pressure can be significantly greater in the knuckle-joint pin as compared to a crank-pin? ...or why a sloping crown sheet is much safer when a locomotive is running down hill?

You need to know these things and a thousand more if you restore locomotives, build models, study railroad history, or just want to impress the mourners at your mother-in-law's wake. (...well, maybe not that...)

There is no way I can describe this book other than throw a few quotes at you and reproduce a few of the illustrations. The detail is mind boggling.

Lets suppose you're going to put a diamond-shaped smoke stack on your soft-coal-burning locomotive. Meyer shows you a diagram of a typical diamond stack. "...The cylindrical part D of the stack often consists of two shells, leaving an annular space about 5/8 inch wide between them. Sometimes four 1-inch holes are drilled through the outer shell just above the flange A, and

another four holes are drilled through the outer shell near the top, for the purpose of creating a circulation of air through the annular space. This arrangement prevents the outer shell from becoming overheated and blistering the paint..." and on and on he goes. Blister the paint? I would be very proud to build an engine that would run well whether it were painted or not.

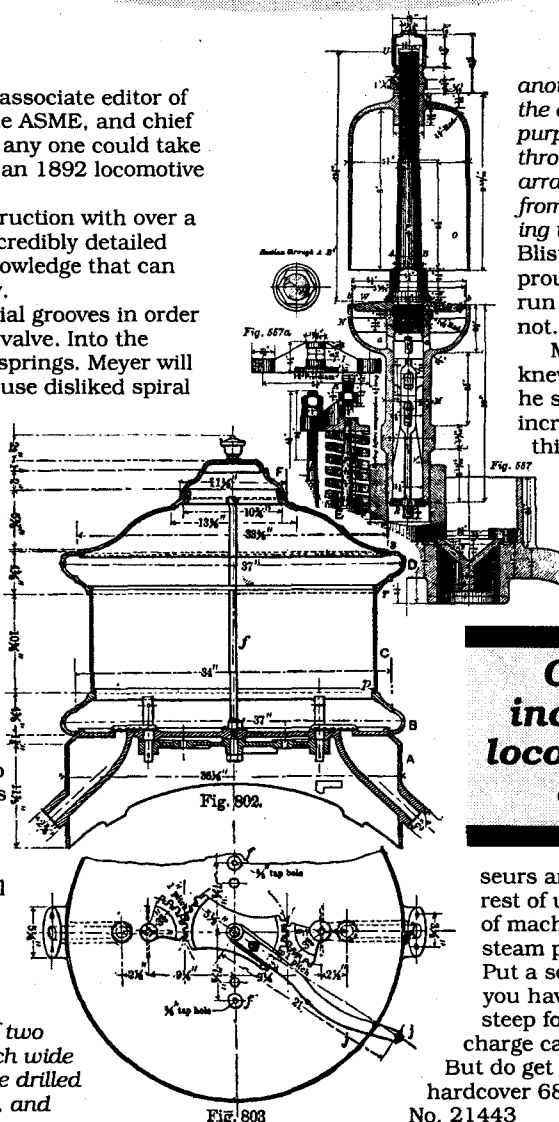
Meyer obviously was an expert. He knew what he was talking about. And he shares his expertise with us in this incredible volume. I took one look at this and knew it had to be reprinted for machinery and steam power fanatics. Reprinting this has been very expensive, hence the high price. But you get your money's worth and more. This is something very special for connois-

**One of the most
incredible books on
locomotive technology
ever published.**

seurs and collectors - a must-have. For the rest of us, it is a visual joy, an exploration of machinery from the glorious age of steam power. Full tilt! Get a copy of this. Put a second mortgage on your house if you have to. Seriously, if the price is too steep for you, consider putting it on your charge card and paying it off in installments. But do get a copy. You'll like this. 8 1/2 x 11 hardcover 685 pages

No. 21443

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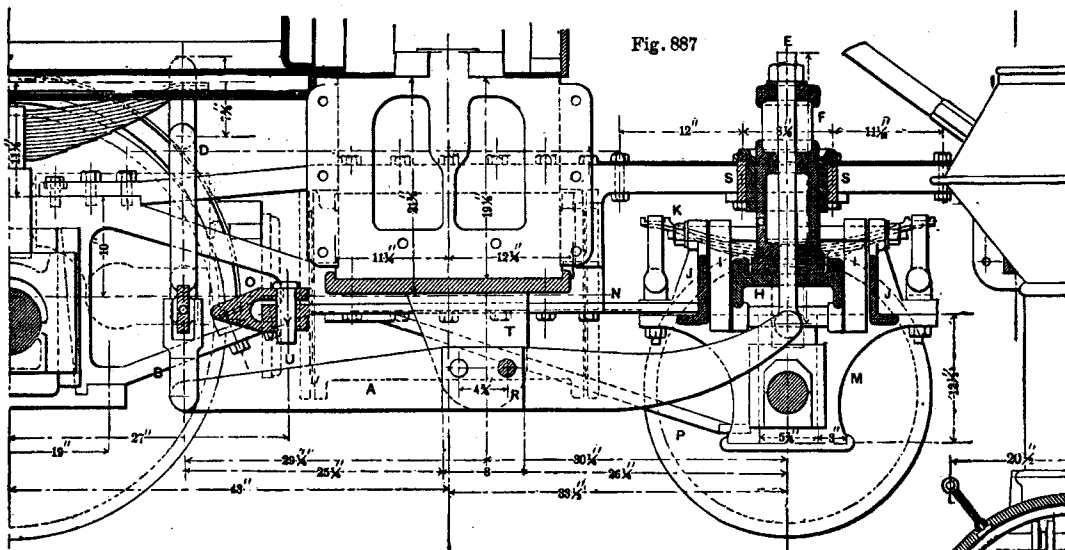


Fig. 887

**Rules-of-Thumb!
Formulas!
Secrets!**

PREFACE

"The series of articles treating on Modern Locomotive Construction recently published in the American Machinist, which, by the request of its editor, I commenced while I was engaged as chief draftsman at the Grant Locomotive Works, Paterson, N.J., and concluded after I had joined the editorial staff of the American Machinist form the basis of this book. All the illustrations, with very few exceptions, were made from working drawings expressly for these papers.

The favorable recognition which these papers have received induced me to revise them thoroughly and add more than fifty per cent' of new matter, with the necessary illustrations, which also had to be made expressly for the purpose, and to publish the whole in book form.

In these pages the locomotive is described in detail and an endeavor has been made to show clearly the application of theoretical principles to the design of the different parts which make up the whole. The aim is to assist practical men whose daily and exacting duties have prevented them from taking up theoretical investigations, and to assist those who are about to enter the business of locomotive building, who have had no opportunity for an extended preparation to design with confidence and success. It is also hoped that the illustrations will supply to some extent the want of a collection of drawings such as are usually found in first-class establishments, and which are often difficult to procure though extremely useful for guidance and reference. The book is not only intended for study, but it is also designed as a handbook for those who are engaged in locomotive construction..."

Paterson NJ September 1892

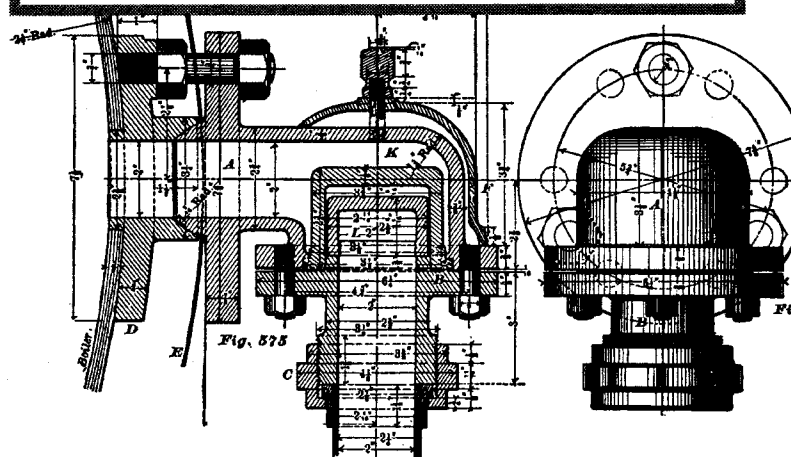


Fig. 875

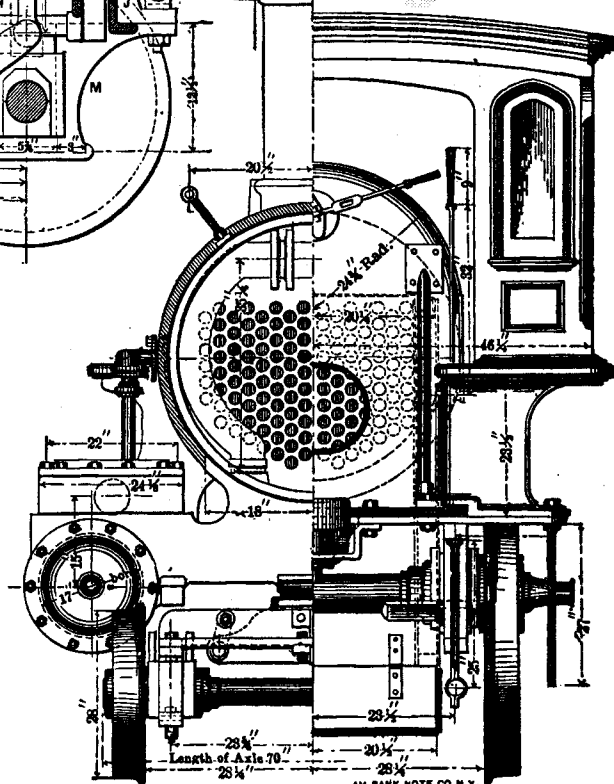


Fig. 996.

AM. BANK NOTE CO., N.Y.

CHAPTERS

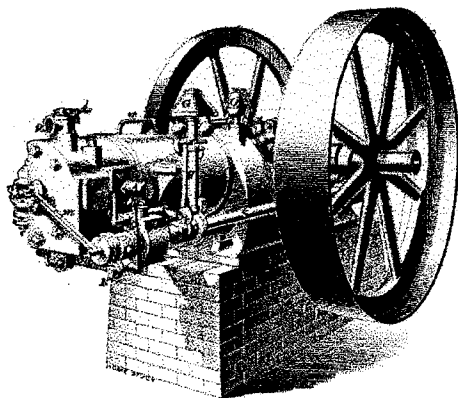
- Classification of Locomotives - Trains Resistance - Tractive Power - Weights of Engines
- Construction of Cylinders - Steam Pipes - Slide Valves
- Valve Gear - Construction of Links - Pistons - Cross-heads - Slides - Stuffing Boxes
- Frames and Pedestals - Axle Boxes
- Driving Axles - Driving Wheels - Counterbalance
- Main-Rods - Side Rods - Crank-Pins
- Throttle Pipes - Throttle Valve Gear - Safety Valves - Whistle - Pumps - Check Valves
- Spring Gear and Springs
- Boilers - Grate Surface - Heating Surface - Riveted Joints - Extension Fronts
- Ash-Pans - Smoke-Stacks - Exhaust-Pipes
- Sand-Boxes - Bells - Pilots - Engine Braces
- Engine Trucks
- Oil-cups - Valves - Cocks - Injector
- Tenders - Tender Trucks
- Useful Rules, Formulas, and Data
- Compound Locomotives.

Secrets of One Lung Engines!

GAS ENGINE SECRETS

reprinted by Lindsay Publications

The first 1897-98 magazine article is quite general explaining the basic engine theory you've known since grade school. But then you explore a one-lung engine with slide valve, poppet valves, ignitions systems, and more. You'll see how to turn coal into producer gas for powering gas



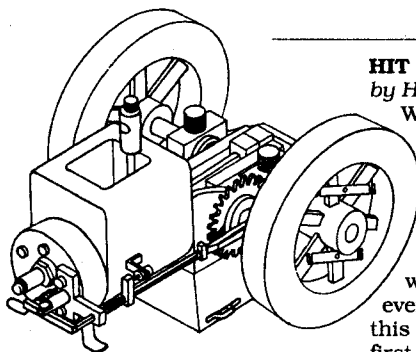
engines. This is similar to the process for gasifying wood. Then you explore two-cycle engines, the Clerk Engine, vertical engines, a valveless engine, and an early carburetor.

Next examine ignition systems: flame ignition, hot-tube igniters, and electrical types. Timing, oilers and mufflers are discussed. A whole section discusses governors, and another covers starting an engine with compressed-air and gunpowder! The last chapter will show you how to test an engine on a homebuilt prony brake, and more.

Anyone who collects and restores old engines, or who builds replicas should enjoy this. Beautiful engravings and drawings. Great reading at a low price. Get a copy! 5 1/2 x 8 1/2 booklet 36 pages

No. 897

\$4.50



HIT & MISS ENGINE PLANS!

by Harold Deppenbusch

When I picked up the phone, Dave Gingery started telling me how I should offer these plans, that they were some of the best he had seen. After I saw a copy of the plans booklet, I agreed. They're good.

You can build a 1 1/8" bore x 1 1/2" stroke hit-or-miss engine complete with waterjacket, governor, flywheels and everything else without the use of castings. In this booklet you get typewritten how-to in the first half with all the construction drawings in

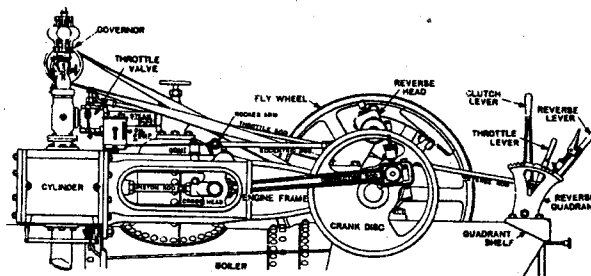


FIG. 22. SIDE ELEVATION OF ENGINE PROPER

CASE STEAM ENGINE MANUAL

by J. I. Case Co.

Learn to run a World War I Case steam traction engine from this well-illustrated reprint. Chapters include: fitting up and starting a new engine, the feed water, firing with various fuels, lubrication and bearing adjustment, handling the engine, the engine proper, the valve gear, the boiler traction gearing, and the compounded engine.

Learn how to use "gage" - or "try-" cocks, how to start a Penberthy injector and what to do if it fails to work, how to

pack the water-glass, how to pack a gear driven injector pump, how to regrind check valves, how to fire with low-grade coal and straw, how to adjust connecting rod brasses, details on rebabbiting main frame bearings and upper cannon bearing, and lots more.

If you're into steam, get a copy of this. It's interesting and low cost. Excellent buy. 5 1/2 x 8 1/2 booklet 70 pages

No. 1260

\$6.00

Model Engine Construction

MODEL ENGINE CONSTRUCTION

by J. Alexander

reprinted by Lindsay Publications

If you're looking for projects to build, you'll enjoy this reprint. Originally published simultaneously in London and New York in 1894, this unusual book contains thirteen chapters: tools, boilers and fittings, the steam engine, fitting up the engine, reversing gears, stationary engines, traction and portable engines, locomotive engines and tenders, railway cars, compound marine engines, engine proportions, patterns and castings, and the last chapter covers a hot-air engine, small power engine, and notes. The illustrations from the 25 large and crumpling foldout plan sheets glued into the back of the original book have been reprinted on pages following the text.

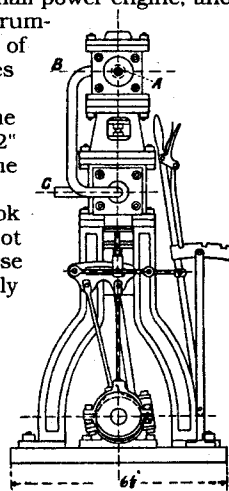
You can build for instance, a beam engine with a 5/8" bore and 7/8" stroke with a 3 1/2" flywheel. The plans for the traction engine locomotive, marine engine, and the rest are of comparable size.

You must realize, of course, that each project could be a whole book rather than a chapter as it is here. The plans are fairly detailed but not quite to the degree you see in modern model magazines. Many of these models are based on small castings which are not commercially available.

Despite these shortcomings, there is a wealth of information and ideas for the guy with a lathe itching to build a working model, particularly a live steam model. A bit on the expensive side, but it's a big book and it delivers hard-to-find info. The original was so brittle we had a devil of a time reprinting it. Order a copy. 5 1/2 x 8 1/2 paperback 360 pages loaded with illustrations

No. 4449

\$15.95



Build a Hit & Miss Engine

the back. You'll learn how to make the base, the cylinder, oiler, water jacket, flywheels, crankshaft, main bearings, heads, valves, con rod, rings, cam, governor parts and all the rest.

Again, these plans are excellent. The book format is not all that professional, but the info Deppenbusch delivers sure is. If you like to build models, I highly recommend this! 8 1/2 x 11 stapled booklet about 40 pages.

No. 1252

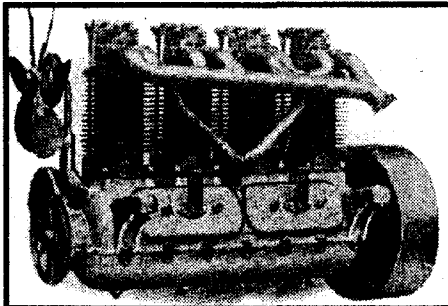
\$15.95

ANCIENT AUTOS

AUTOMOBILES 1906

by American School of Correspondence
reprinted by Lindsay Publications

This is a well-illustrated, fun-to-read book about early autos from a five hp 1906 Runabout to steam autos.



You'll see photos and drawings of early four-cylinder air-cooled engines, flimsy unbalanced crankshafts with enormous flywheels, a gasoline engine with revolving cylinders, unusual carburetors, Frayer-Miller engine parts, planetary gear transmissions, variable speed friction drives,

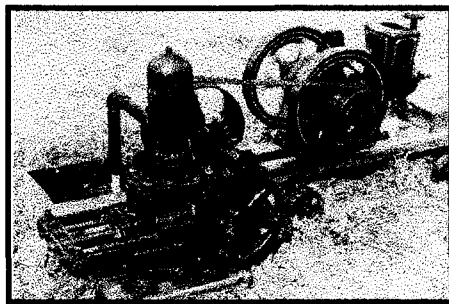
chain drive systems, steering wheel and steering lever systems, brakes, tires, spark coil and magneto ignition systems, bodies, the Marmon V-4 air cooled engine, shock absorbers, and more.

The photographs in this early book are somewhat gray and "muddy" (photo technology was new, too). You get an inside look at very early autos when autos were still practically experimental. Fun to read! Reasonably priced. Order a copy! 5 1/2 x 8 1/2 paperback 88 pages

No. 20307

\$5.95

Old British Stationary Engines



OLD STATIONARY ENGINES

by David Edgington

Check out this picture book of old British stationary engines. Compare them to old American engines.

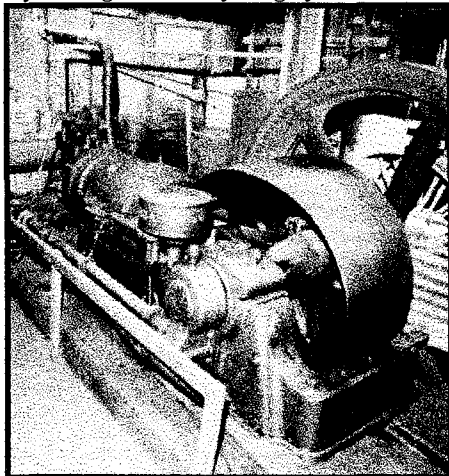
The captions under each photo are lengthy, but other than that there is not

much text. The engines pictured date from the early 1860's to about 1950. Except for a couple of American engines, the rest are British. You'll find a the Lenoir gas engine, a Priestman, the Hornsby, several Petters, an Imperial heavy-oil engine built by Keighly Gas and Oil Engine Co, several Listers and others. If you plan to fly to England, you'll find the list of museums in the back useful.

Excellent picture book for the engine fanatic. Unusual book, not easy to find in the U.S. If engines are your thing, order a copy. 6x8 1/2 book-let 32 pages

No. 1348 \$5.00
(Comes from England.

Supply may be unpredictable.)



Meet Charles T. Porter "MR. STEAM ENGINE"

ENGINEERING REMINISCENCES

by Charles T. Porter

reprinted by Lindsay Publications Inc

Few people know of Charles T. Porter, one of the most talented self-taught engineers who ever lived. In the earliest years of this century, Porter wrote a series of articles for "Power" and "American Machinist" magazines recalling his years of developing a superior steam governor, the invention of the high-speed engine, steam indicator, and much more. When the series ended in 1908, the articles were compiled into a book of which only a few were printed. Today the book is quite rare, but you can have a reprint.

Before Porter, steam engines rarely turned more than 60 rpm. If they did, they rattled, shook, lost power, and even exploded. After Porter redesigned them, they were running smoothly and powerfully at several thousand rpm. Porter didn't invent the steam engine, but it can be argued that he perfected it.

This book is almost like talking to the "ol' man" himself. His articles read smoothy and interestingly. Twenty eight chapters discuss evolution and manufacture of the central counterpoise governor, engineering conditions in 1860, I meet Mr. Allen, Mr. Allen's inventions, analysis of the Allen link, planning my London exhibition engine design, conditions I found there, remarkable sale of the engine, designs of horizontal bed engines, engine for the Oporto (Portugal) exhibition, trouble with the Evan Leigh Engine, experience in the Whitworth works, the steam fire engine in England, return to America, my shop, the Colt Armory engine, boilers tests in exhibition of 1871, production of an original surface plate, experience as member of board of judges at the Philadelphia Centennial Exhibition (1876) and much, more more.

You also get many photographs of the important inventors and machinists of the era along with diagrams and drawings of engines and their components.

The John Fritz medal is awarded annually for "Scientific or Industrial Achievement in any field of real or applied Science". I supposed you could loosely interpret that to be the Nobel Prize for invention. In the years 1905 through 1908 the recipients were Lord Kelvin, George Westinghouse, Alexander Graham Bell, Thomas A. Edison, and in 1909 Charles T. Porter - proof that Porter was an exceptionally prominent steam engine.

Reciprocating steam engines are gone from everyday life. Only three high speed Porter-Allen engines are known to exist, one being at the Smithsonian.

Fun to read! Historically important as well. Loaded with interesting commentary and first hand accounts from a man who knew all the big names in industry. Get a copy. Well worth having. You'll like it. 5 1/2 x 8 1/2 paperback about 400 pages.

No. 4350

\$14.95

One of the most interesting books...

"I just finished 335 pages of 'Engineering Reminiscences' by Charles T. Porter. This was one of the most interesting books I have ever read. Anyone interested in steam engines or shop work of any kind should read this book. I consider it a rare bargain in books as well as a rare work. Porter's experiences from lawyer to steam engine builder and inventor, his problems with people, his failure and successes, are all written by himself in a most engaging manner. Of the almost \$400 worth of books I have bought from you, I consider this book to be one of the best. Your statement on the back cover, 'Porter was to steam engines what Edison was to the electric light He didn't invent them, but he did perfect them' is right on. I knew next to nothing about steam engines before reading Porter's book. Now I at least have an interest and desire to know more about them and their workings."

-Walt D., Kansas City

Prospector's Field Book

THE PROSPECTOR'S FIELD-BOOK AND GUIDE

by Prof. H. S. Osborn

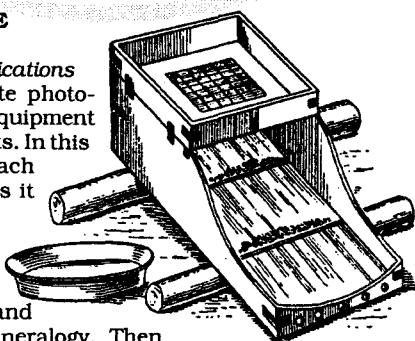
reprinted by Lindsay Publications

You don't need satellite photographs and million-dollar equipment to find valuable ore deposits. In this book an old-timer will teach you the state of the art as it was in 1901.

You'll learn the basics of mineralogy, blowpipe analysis, crystallography, surveying, ore analysis, and

special mineralogy. Then

you'll get detailed information on tellurium, platinum, silver, copper, lead, tin, mercury, bismuth, nickel, cobalt, cadmium, zinc, iron, aluminum, antimony and manganese. A chapter touches briefly on alum, arsenic, borax, clays, mica, meerschaum, rock salt and more. Another chapter goes into petroleum, ozocerite, asphalt and even peat. Chapter 15 will even teach you about gems and precious stones.



This book can be used all over the US from East coast to West. You can explore for gold, silver and platinum and hope to get rich. More realistically, it might be fun to locate a local vein of iron ore or copper ore and try smelting metal the way the ancients did it. Imagine the fun you'd have bragging that you not only

built a lathe, but that you actually extracted the metal used in its construction from ores you dug yourself!

If nothing else, you'll find this to be an easy-to-read text on minerals and basic geology. And it's good. The first edition came out in 1892, and this is a reprint of the 5th edition in 1901. So you know this was a popular book in its day. Get a copy. 5 1/2 x 8 1/2 paperback 308 pages

No. 4570

\$9.95

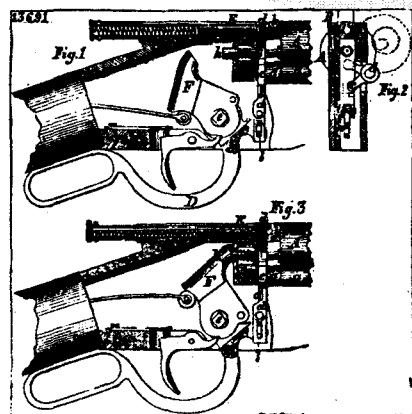
1855 Firearms Patents

FIREARMS - U.S. PATENTS 1855

reprinted by Lindsay Publications

In 1855 the U.S. Patent Office issued 59 patents on various types of weapons from Sylvanus Sawyer's Improved Compound Projectile No. 13,799 to Swyney's Improvement in Breech-Loading Magazine Firearms and Huffman's Improvement in Repeating Cannon.

You'll find text and



illustrations that describe the cutting edge of firearm technology as it was just five years before the beginning of the Civil War. The hottest topic seems to be improvements in rapid loading and repeating weapons.

Just because a patent is issued doesn't mean that the invention is useful or practical, just that it is unique. One of these forgotten patents could be a great idea waiting to be rediscovered. It might be just the idea you've been looking for. Unusual. Reasonably priced. Consider this carefully! 6x9 paperback 48 pages

No. 818

\$4.95

1871 STEAM ENGINE PROJECTS

STEAM ENGINE PROJECTS

from the Young Mechanic 1871 reprinted by Lindsay Publications

The 1896 edition of the Young Mechanic contained mostly dull information in its 340 pages. At the back of the book, however, were interesting chapters on how to build simple but functioning steam engines and their boilers. Only those chapters have been reprinted here.

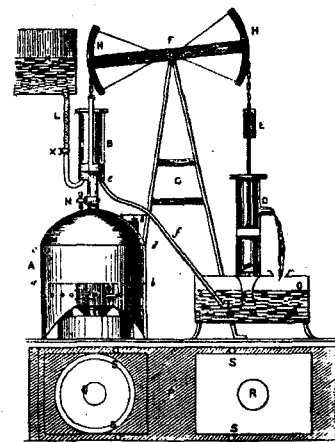
Chapters include: How to Make a Steam Engine, Watt's Engine, and How to Make an Engine. You'll learn about the basics of steam power, packing glands, Newcomen's engine, details of Watt's steam engine, and throughout details on building both the engine and boiler.

Certainly, this is not a sophisticated engine, but IT IS an engine that almost anyone should be able to build and operate. Even if you don't build the engine described, you will find useful ideas that you can apply to your own design.

Consider this carefully. It's great old information at a very reasonable price. Order a copy. 5 1/2 x 8 1/2 paperback 64 pages leatherette cover

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\$4.95



STEAM ENGINES OF 1848

RUDIMENTARY TREATISE ON THE STEAM ENGINE

by Dr. Lardner

reprinted by Lindsay Publications

Let Dr. Lardner teach you about the steam engine as it existed in 1848 England. He'll show you some simple things you knew in the second grade, but he'll also show you how early English mechanics viewed the complexities of their machines.

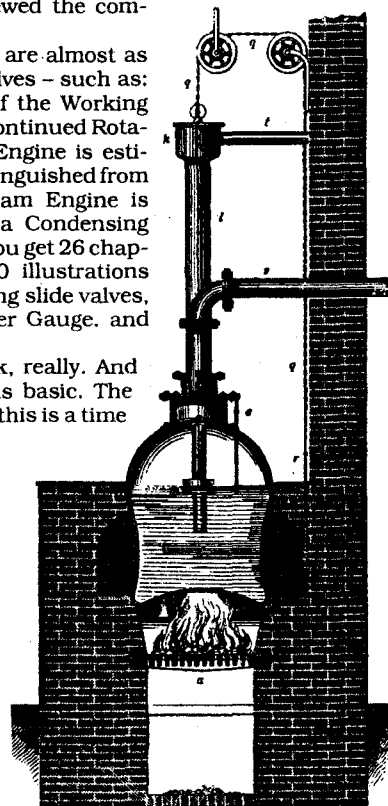
The titles of the chapters are almost as long as the chapters themselves - such as: How the Alternate Motion of the Working Beam produces a Motion of continued Rotation; How the Power of an Engine is estimated and expressed, as distinguished from its Duty; and How the Steam Engine is constructed in cases where a Condensing Apparatus is inadmissible. You get 26 chapters in all. And you get 10 illustrations (remarkable for 1848) showing slide valves, Watt's indicator, Glass Water Gauge, and more.

This is not a how-to book, really. And most of what is presented is basic. The beauty of this volume is that this is a time machine of sorts that allows you to be apprenticed for a few hours to a crack British steam engine engineer in the early 1800's.

If you build model engines, you'll get useful ideas, bits and pieces that could very well help you in building a replica of an old beam engine. This is a great book for the steam engine library. Rare. Worth having. Order a copy. 4 1/2 x 7 paperback 130 pages

No. 20528

\$6.95



Cast Lathe Beds, Steam Engines, and much More!

FOUNDRY PRACTICE

by R. H. Palmer
reprinted by Lindsay Publications

Palmer will teach you some of the usual techniques taught in most other books such as molding a hand wheel, molding with a false cheek, molding a double groove sheave in a three-part flask, and more.

But then he teaches molding a draw-bench frame on the floor, molding a gap-press frame, casting lathe beds and chilling the ways, molding ornamental columns, large kettles, car wheels, molding an engine bed in a skin-dried mold, and molding a propeller. You'll learn to use dry sand molds to pour a Corliss engine cylinder, a slide valve locomotive cylinder, a superheater locomotive cylinder, and even printing press cylinders.

You get info on loam molding, dry-sand cores, setting cores, using chaplets, and on risers, shrinkheads, and feeding heads. Chapters will teach you how to clean castings, and use molding machines such as power squeezers, jarring machines, roll-over machines, and more. Learn to repair broken castings with thermit and oxy-acetylene welding. You get chapters on molding tools, molding sand, iron and its composition, operation of the cupola, the air-furnace, and the special differences practiced in a brass foundry.

This is a great 1919 book revealing techniques usually only learned through apprenticeship. Obviously, these castings are really big, but the techniques are valid for our scaled down needs. Great illustrations! If you pour machine castings, you should have a copy of this in your library. Order a copy today! 5 1/2 x 8 1/2 paperback 390 pages
No. 20552

\$13.95

Chats on Iron & Steel

NON-TECHNICAL CHATS ON IRON & STEEL

by LaVerne W Spring
reprinted by Lindsay Publications

Here's a book from 1917 that presents the steel industry in as interesting way as I have ever seen. I think any machinist, blacksmith, or historian of technology will love this. That means YOU, son...

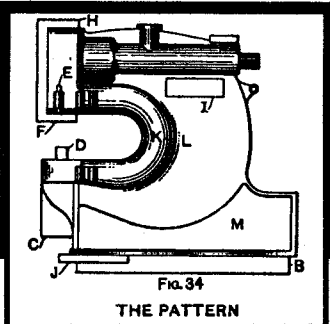
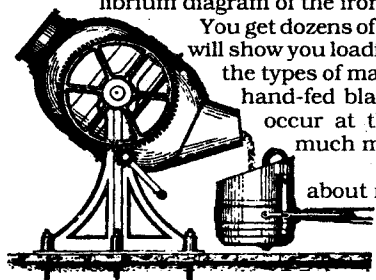
Chapters include the early history of iron, raw materials, the blast furnace, wrought iron, cementation and crucible steels, Bessemer steel, open-hearth process, cast iron, malleable cast iron, cast steel, alloy steels, high-speed steels, mechanical treatment of steel, rolling process, rolling of rods, wire and wire drawing, manufacture of pipe and tube, manufacture of seamless steel tubes, transformation and structures of the steels, equilibrium diagram of the iron carbon alloys, and references.

You get dozens of photographs and drawings that will show you loading of the old beehive coke kilns, the types of machines for unloading ore boats, hand-fed blast furnaces, the fireworks that occur at the "cinder-notch", and much, much more. Beautifully illustrated.

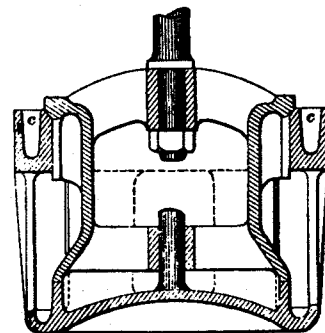
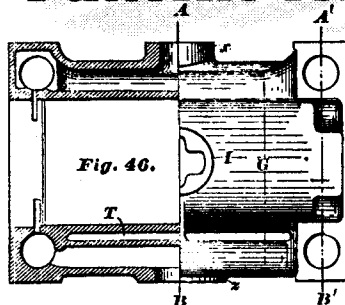
A fascinating readable book about metal. Excellent. Order a copy. 5 1/2 x 8 1/2 paperback 358 pages

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Patterns for Machines!



MACHINERY PATTERN MAKING

by P. S. Dingey
reprinted by Lindsay Publications

It's easier to shape wood than metal. Put your efforts into building a quality wood pattern, and use it to cast the metal part you need for that special machine you're building. Maybe you could even sell castings to other machinists.

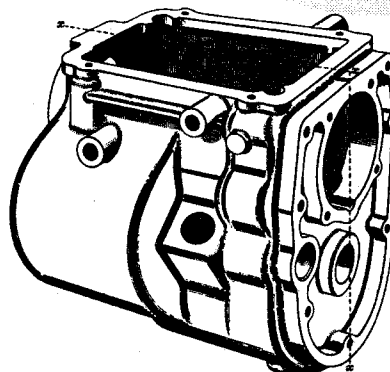
You get Dingey's secrets on making patterns for printing press cylinders, fly wheels, worm wheels, plug valves, propellers, Corliss engine cylinders and much more. And what is even better, you'll find 417 great engravings to show you how. This is a gem of a how-to book.

If you cast machine parts, get a copy of this. The text is good, but the illustrations are worth the price of the book alone. Make your engines look professional. Save yourself hours of needless machining. And make parts that would be very difficult to fabricate from weldments.

Excellent 1898 book. Order a copy! Recommended. 5x7 paperback 208 pages 417 engravings
No. 20390

\$8.95

METAL PATTERNS!



METAL PATTERN MAKING

by Charles F. Fuller
reprinted by Lindsay Publications

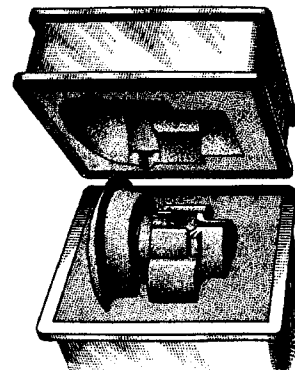
If you intend to make numerous castings of a particular part, consider using a metal pattern. They are more durable than wooden patterns, and much easier and faster to produce if you need multiple copies of the pattern itself. You'll learn how to make the complicated patterns and coreboxes needed to mold and cast engine pistons, gear cases, pulleys, cast-iron stoves, a clevis, and much more. You get lots of unusual information. Learn methods of gating thin patterns, patching blowholes in aluminum castings, molding processes, and more.

If you decide to have a commercial foundry pour a large number of castings for you, you'll need durable patterns that can be used on molding machines. This will be the book you need.

Everything is heavily illustrated, and the text is brief, detailed, and easy to read and understand. Wall-to-wall illustrations. If you're a foundry freak, you'll find it fun to read even if you never use any of it. An excellent book from 1928. Get a copy. 5 1/2 x 8 1/2 paperback 172 pages

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\$9.95



SAND CASTING

**COMPLETE
HANDBOOK OF
SAND CASTING**
by C. W. Ammen

Let Bill Ammen with his more than 35 years experience show you how to make professional castings with sand molds. Learn about molding, sand mixes, tools, mold making equipment, patterns, cores and core boxes, bench molding, floor molding, gates, sprues, risers, proper gating design, non-ferrous melting furnaces using coke, oil, and gas, and a 12 inch cupola furnace that can melt more than half a ton of cast iron per hour.

Here's solid, advanced information for the guy who wants to improve his castings and move on to more complex fields. Ammen also comments on starting a foundry business.

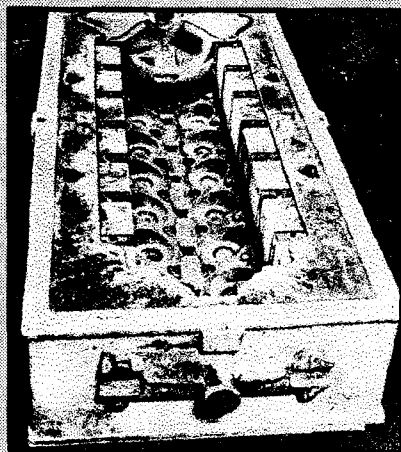
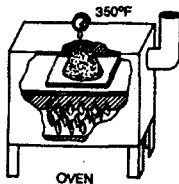
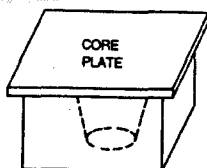
Good book. Thousands have already been printed and sold! 5x8 paperback 238 pages well illustrated
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Cast Small Metal & Rubber Parts!



**HOW TO CAST
SMALL METAL & RUBBER PARTS**
by W. A. Cannon

Restorers of old autos and users of small, specialized castings take note! You'll find all you need to know about reproducing both metal and rubber castings right here. You'll find chapters on six casting methods, alloys, equipment you can make, molding sands, fluxes, degassers, and flasks. Learn how to make molds and pour. Learn about a remarkable rubber substitute and how to use it to make grommets, pads and stripping. Learn how to mold from damaged or defective molds. Lots more. A good book on an unusual topic. 5 1/2 x 8 1/2 paperback 144 pages
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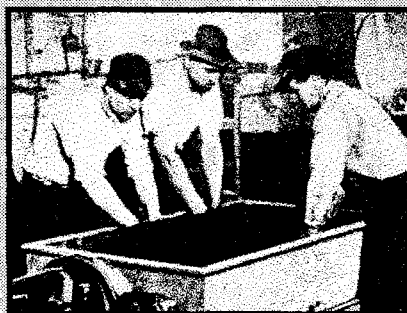


Melting & Casting Aluminum

MELTING & CASTING ALUMINUM
by Robert J. Anderson

You get five chapters (the only really good chapters) from a huge 1925 engineering text covering melting practice, production of secondary aluminum (in other words, recycling scrap), foundry practice, casting losses and defects, and the production of die castings with permanent molds.

There are probably newer alloys and bet-



ter ways of handling them developed, but aluminum is still aluminum, and for the low-tech applications we generally come up with, this book gives really detailed solid information that is otherwise hard to find.

You'll find discussions of fluxes, refractories, ways of evaluating scrap, pouring procedures, measuring pouring temperatures, how to cure porous castings, and much more. You'll find the die casting chapter covers the molds, their use, and troubleshooting. This is some of the most practical diecasting information I've run across yet.

If you pour aluminum, you should have a copy. You're sure to learn something that will help you improve your work. Order a copy. 5 1/2 x 8 1/2 paperback 253 pages
No. 4597 \$9.95

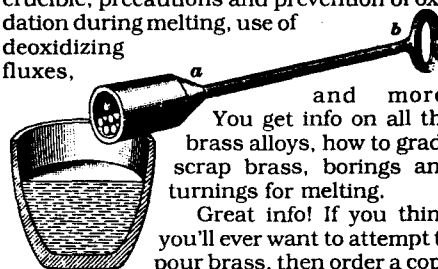
BRASS FOUNDRY

BRASS FOUNDRY

reprinted by Lindsay Publications

Pouring molten brass is somewhat different from pouring aluminum or iron. This chapter from a 1903 technical school textbook will show you the differences. You'll learn about the molding sand needed for brass, blackenings and partings, contraction, gating and feeding, cleaning of castings in tumbling barrels and with pickling, the crucible furnace, a simple brass furnace, brass furnace in a battery, increasing the speed of the melt, combined cupola and crucible furnace, oil burning furnaces, care of crucibles, and more.

You get valuable info on melting copper and old brass, adjusting and handling the crucible, precautions and prevention of oxidation during melting, use of deoxidizing fluxes,



and more.
You get info on all the brass alloys, how to grade scrap brass, borings and turnings for melting.
Great info! If you think you'll ever want to attempt to pour brass, then order a copy
now! 5 1/2 x 8 1/2 booklet 39 pages
No. 868 \$4.00

THERMIT!

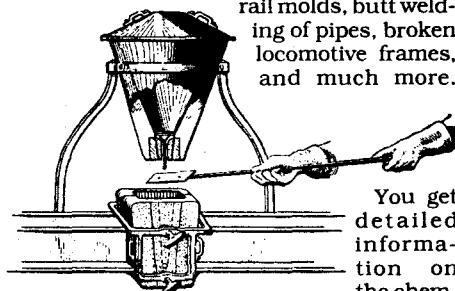
THERMIT WELDING PROCESS

by Richard N. Hart

reprinted by Lindsay Publications

Thermit! What an incredible process! Take a mixture of powdered aluminum and iron oxide, ignite it, and stand back! Within seconds the mixture flames to twice the temperature of molten steel, and from the bottom of the special crucible comes molten iron. In 1914 Thermit was a cheap and simple way to weld railroad track, axles, and even broken motor shafts.

Learn about the invention of Thermit process, welding rail, special crucible and rail molds, butt welding of pipes, broken locomotive frames, and much more.



You get detailed information on the chemistry involved, how to set and preheat pieces, how and why to add nickel or titanium, the use of Thermit in foundry practice, examples of practical welds, including photos of repairs on a torpedo boat rudder, a locomotive frame, even a steamboat paddlewheel axle!

Unusual process! Loads of rare information! Get a copy! 5 1/2 x 8 1/2 booklet 40 pages
No. 899 \$4.25

Green Sand Casting

GREEN-SAND CASTING

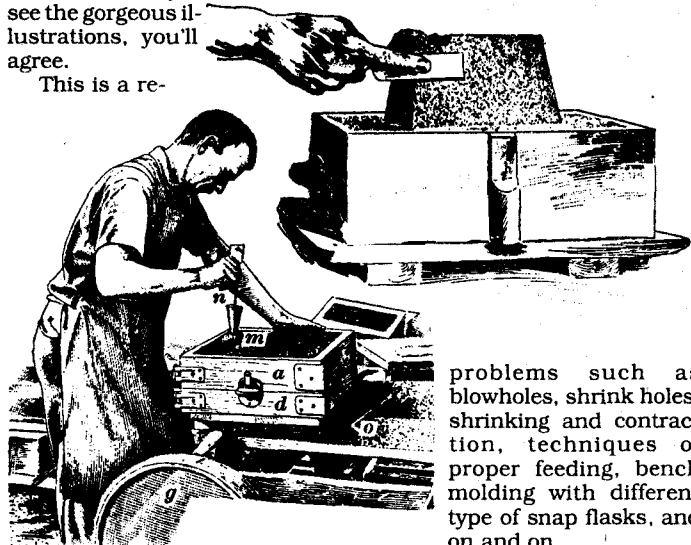
reprinted by
Lindsay Publications

You've built a small furnace, and you have a ladle of molten metal. What are you going to do with it? Are you going to pour it into an old boot? You had better have a sand mold ready.

You probably already realize that making green-sand molds (the sand isn't really green, just wet) is more of an art than a science. Where to put sprues and runners, vents for steam and gas, and just how hard to ram up the sand are skills that come only with practice.

Old timers will tell you that you can't really learn green-sand molding from a book, and they're probably right. But this book comes as close to revealing the secrets as any I've seen. When you see the gorgeous illustrations, you'll agree.

This is a re-



print of chapters from a 1903 technical school textbook. Learn about tools, materials and methods, including sands, tempering, sieves and riddles, rammers, required hardness, deep molds and venting, drawing the pattern, closing and pouring, shaking out the casting, and much more.

Learn about molding by bedding in — a technique in which you build the mold right on the foundry floor in a pile of sand. It's quite a skill to level and set up such a mold.

In part three you'll learn about molds for casting iron. You get rare illustrated how-to on making joints for irregular forms, three-part molds in three-part flasks, three part molds in two-part flasks, followboards in forming joints,

**Make the sand
molds you need
to pour
QUALITY
CASTINGS!**

plaster-of-paris matches, match plates, gagers and soldiers, setting of cross bars, nails and rods at joints and corners, valuable lessons on patching molds, swabbing broken corners, sleeking and printing dry blackening, skin-dried molds, types of gates and pouring basins and more.

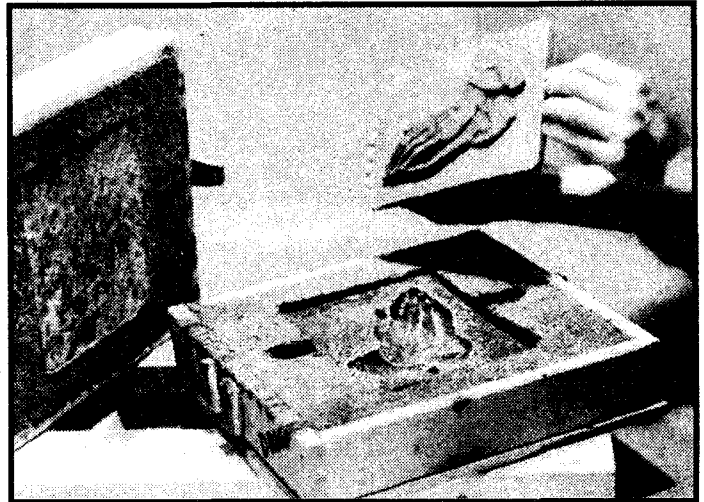
Then learn about chaplets,

problems such as blowholes, shrink holes, shrinking and contraction, techniques of proper feeding, bench molding with different type of snap flasks, and on and on.

Most of what you learn in this book is on a larger scale than what a home foundryman might need. But the techniques are exactly the same. The illustrations are dynamite! You won't just be told how it was done, you'll see for yourself.

Build Gingery's charcoal furnace. Ram up a mold, melt down some aluminum cans and scrap and make a pour. No matter how good your casting is, you'll want to make it better and more complicated next time. You'll learn how to do just that — right here!

This is one of the essential books for the foundry library. Excellent book. More techniques here than you will use in a month of Sundays. Get a copy! 5 1/2 x 8 1/2 paperback 174 pages No. 4082 \$9.95



Cast Objects of Beauty

ORNAMENTAL METAL CASTING

by Robert Whitmoyer

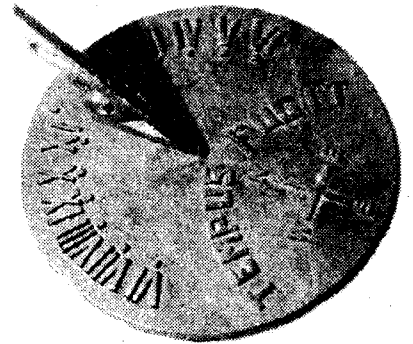
Melting metal and pouring castings is an extremely valuable skill when designing and building machinery. But casting metal can be a whole lot more than that!

Whitmoyer will show you how to take Gingery's charcoal furnace and push it into new areas. You'll learn how to build and operate a charcoal furnace capable of melting 2 1/2 quarts of aluminum. You'll learn how to make a beautifully simple, yet easy-to-handle crucible, flasks, a molding table, and all the other components you'll need.

You'll learn how to mold and cast plaques, a sundial, solid figurines, penny bank replicas, and a large fountain that would cost you a fortune to buy.

One of the strongest points of this book is the info on lost wax casting techniques. You'll learn simple techniques of using plaster-of-Paris to make incredibly detailed castings. Wait until you get a good look at the chess set he cast! Beautiful work!

If you love casting metal, you must get a copy of this. It will round out your abilities and will enable you to cast objects that might be a whole lot easier to sell than something like indexing heads. In other words, the skills here could make you some money on the side. Excellent book! Loaded with photos and drawings. Great how-to! Get a copy! 5 1/2 x 8 1/2 paperback 92 pages No. 4430 \$9.95



PATTERNMAKING 1905

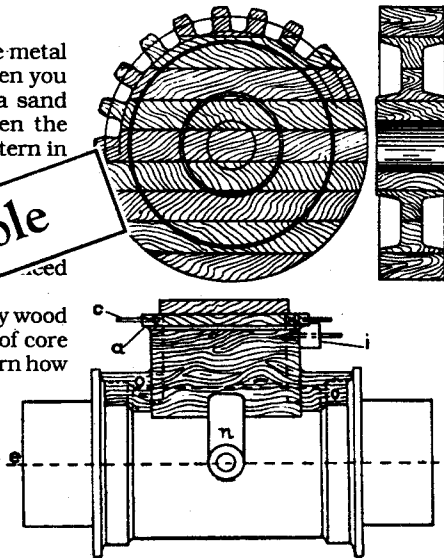
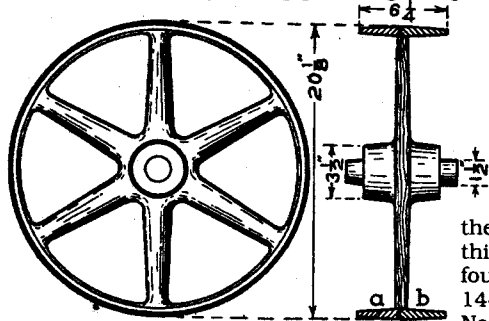
PATTERNMAKING 1905

reprinted by Lindsay Publications

The easiest way to work metal is to create the metal part you need from soft, easy-to-work wood. Then you use this wooden pattern to create a cavity in a sand mold into which molten metal is poured. When the casting cools, you have an exact copy of your pattern in metal.

Patternmaking is both an art and a science. The quality of your casting can be no better than the quality of the pattern you use. This reprint from "Mechanical Engineering" published in 1905 is a must-read for anyone who wants to know.

Learn about the necessary wood working tools, basic working tools, basic construction of core boxes, multi-piece patterns, and more. You'll learn how to make built-up patterns for pulleys and flywheels, lathe face plates, pipe fittings, engine



Not Available

cylinders, gear wheels and more.

If you pour metal, then you should have this book on patternmaking. Of all the patternmaking books I've seen old or new, this is among the best. Order a copy for your foundry library today! 5 1/2 x 8 1/2 paperback 144 pages No. 4031

\$9.95

ADVANCED PATTERNMAKING

ADVANCED PATTERNMAKING

reprinted by Lindsay Publications

Patternmaking is probably the most important step in producing high quality castings because minor changes in pattern and fillet shape can radically change the strength of a casting.

"Advanced Patternmaking" starts where "Patternmaking 1905" leaves off. You get dozens of examples demonstrating the techniques of skeleton patterns, green-sand and loam patterns for large pipe bends, patterns and core boxes for globe valves and three-way cocks. You'll see patterns for wheels and gears with four arms, web plates, and six or more arms. You'll see how a pattern for a shaft coupling is made.

Some of the more interesting examples you'll see are the patterns for steam engines:

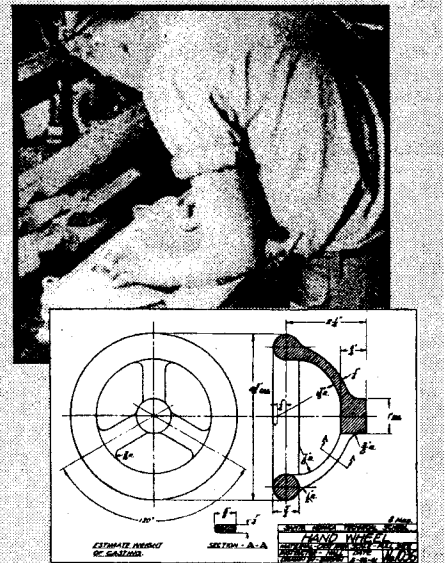
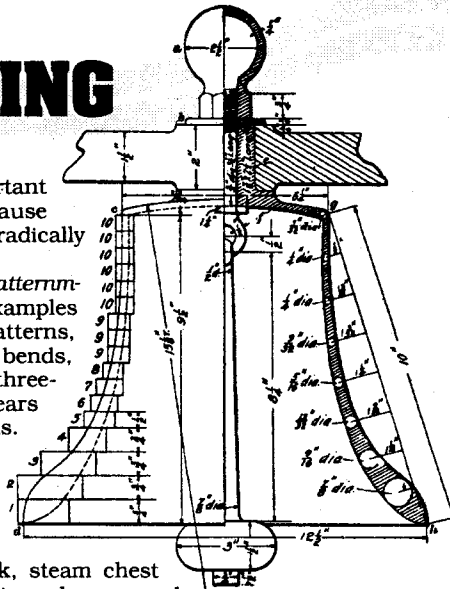
cylinder head and cover, disk crank, steam chest cover, Corliss engine valve gear and slide-valve engine cylinder.

You'll find a stop or throttle valve, special three-way cock, small bell, patterns and core boxes for casting chain, spur gear and rack, miter and bevel gear patterns, worm and worm gears, and hollow arm flywheels.

Finally, the last section will show you such complicated things as patterns for screw propellers and incredible intricate carved patterns for cast iron parlor and cook stoves. Making stove patterns is an incredible skill, and this is the only place I've ever seen it taught.

Melting metal is one thing, but turning molten metal into something useful is another. This is a great book with great illustrations! Reasonable price! 5 1/2 x 8 1/2 paperback 144 pages No. 4090

\$9.95



Practical Wood Patternmaking

"The purpose of this textbook is to prepare the individual to become skilled patternmaker in the shortest possible time."

PRACTICAL WOOD PATTERNMAKING

by J Robert Hall

reprinted by Lindsay Publications

In 1943 Hall was the Instructor of Patternmaking and Foundry at the Santa Monica Technical School in California. Judging from his book, he must have been more a man of action than words. You get dimensioned drawings, molding diagrams and photographs while text is held to a minimum.

You get 89 lessons that can't all be listed here. Each lesson, or chapter, starts with the words "How to". You'll discover how to sharpen a gouge, measure lumber, use runners and gates, lay out and cut square holes, use leather fillets, use templates, lay out and cut a true round or ball, make cores, make and use face plates, use wing core and wing prints, use babbitt anchors, use balance cores and chaplets in core work, make a medium or large spur-gear pattern, use a cupola and crucible in metal melting, and on and on.

You get a large format book with 89 lessons, wall-to-wall illustrations, including dimensioned drawings of patterns of useful castings such as bearing caps, a hand lever for a machine, a crank, a foot pedal, a hand wheel, a pulley, and dozens more.

You'll visit three different foundries to watch molders ram up molds, to see their inventory of stock patterns, and more.

A great teacher and a great reference from a more modern perspective! If you melt metal, you need patterns to make molds. This is a valuable book to have in your foundry library. They don't get much better than this. Grab a copy. 8 1/2 x 11 paperback 188 pages No. 21095

\$14.95

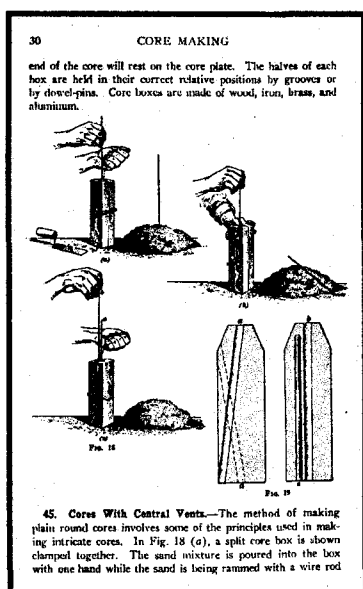
CORE MAKING 1940

by Elmer F. Scott
reprinted by

Lindsay Publications

When General Motors casts a manifold for an automobile engine, how do they create the complicated passageways? Yup. You guessed it. Cores.

If you don't already know, cores are bizarre shapes made from sand and a sticky binder like molasses. After the core is molded, it is baked until hard. After the main green sand mold is rammed up, the core is carefully placed inside, and the mold is closed up. After pouring the casting, the hardened sand core can be broken out to leave the hollow passage. Cores save unnecessary time and



Core Making 1940

expense in machining, and in manifolds, for instance, produce passageways almost impossible to create any other way.

Here you learn how cores are made and used. Although this is a textbook for an apprentice about to enter an industrial foundry, there is enough information to make it useful for the home foundryman. And like master machinist Gingery preaches, you need to take full industrial-strength techniques and render them down into useable small shop techniques. This is raw material for the simplification process.

You learn about cores and tests, materials used, core-sand mixtures, green-sand cores, sweeping green-sand cores, making green-sand cores in boxes, making small round cores by hand, core-making machines, reinforcing of cores, venting of cores, core plates and dryers, core baking, treatment of dried cores, and core room temperatures.

This is a revised and expanded edition of the coremaking section from *Core Making, Dry-Sand & Loam Molding* that we offered until a couple of years ago. This 1940 edition is twice the size of the 1903 edition we offered, although many of the same illustrations are repeated. If you don't have that book, you should have copy of this for your foundry reference library. Cores are extremely useful, and the price of this book is right. Get one. 5 1/2 x 8 1/2 paperback 80 pages

No. 21419

\$7.95

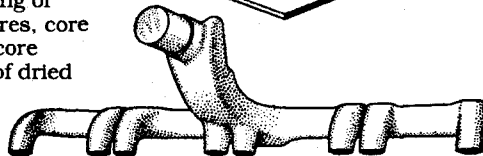
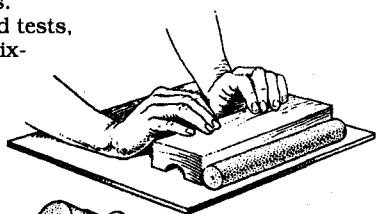
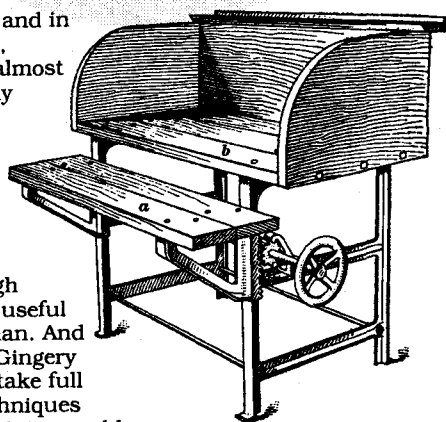
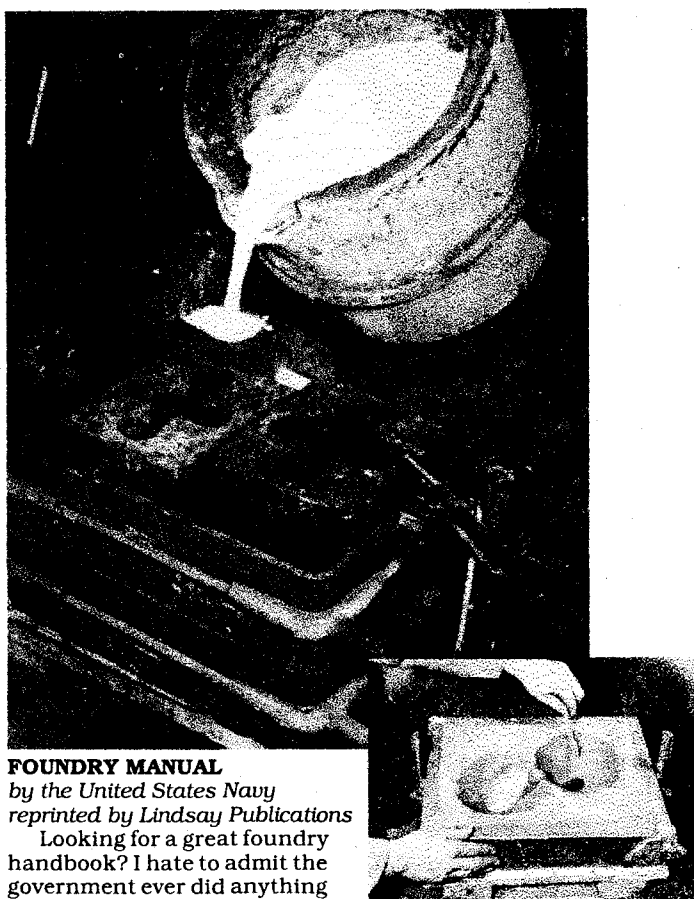


Fig. 27



FOUNDRY MANUAL

by the United States Navy
reprinted by Lindsay Publications

Looking for a great foundry handbook? I hate to admit the government ever did anything

Navy Foundry Manual!

In 1958 the government may actually have done something right!

right, but this 1958 NAVSHIPS publication is a gem. It's loaded with some of the best foundry photos and drawings I've ever seen. You can learn by merely studying the illustrations.

The preface accurately describes the Manual—

"This Manual is intended primarily for use by foundry personnel aboard repair ships and tenders. The recommended practices are based on procedures proved workable under Navy conditions and are supplemented by information from industrial sources.

"The Manual is divided into two general sections. The first section, chapters 1 through 13, contains information of a general nature, such as 'How Metals Solidify,' 'Designing a Casting,' 'Sands for Mold and Cores,' 'Gates, Risers, and Chills,' and 'Description and Operation of Melting Furnaces.' Subjects covered in these chapters are generally applicable to all of the metals that may be cast aboard ship.

"The second section, chapters 14 through 21, contains information on specific types of alloys, such as 'Copper-Base Alloys,' 'Aluminum-Base Alloys,' 'Cast Iron,' and 'Steel.' Specific melting practices, suggestions for sand mixes, molding practices, gating, and risering are covered in these chapters.

This manual has been written with the 'how-to-do-it' idea as the principal aim. Discussions as to the 'why' of certain procedures have been kept to a minimum. This manual contains information that should result in the production of consistently better castings by repair ship personnel."

Although it pays to know why procedures are performed the way they are, the first step is to perform them. Consider this to be pure practical how-to. It delivers. Excellent book. No two ways about it. If you pour metal, you need this book. Get a copy of this. You won't be disappointed. A gem! 8 1/2 x 11 paperback over 300 pages

No. 20072

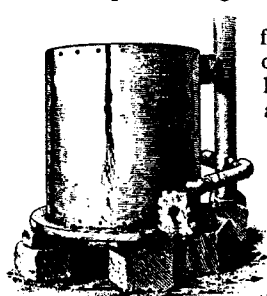
\$19.95

CUPOLA PRACTICE

CUPOLA PRACTICE & MIXING CAST IRON

by International Correspondence Schools
reprinted by Lindsay Publications

"Iron has actually been melted in an old flour barrel that was lined with clay and pieces of brick. Iron has been successfully melted in a 12-inch cupola having a blast furnished by a blacksmith bellows"



You'll learn about firing cupolas in the first 58 pages of this reprint, and the mixing of iron scrap in the remaining pages. You'll learn about tuyeres, central tuyeres, height and position of slag holes, long heats, multiple rows of construction of charging doors, repairing linings, and more. You get instructions on the firing and operation of the cupola as well. And there's one small, but fascinating section on melting iron in a small cupola.

Melt iron! Here are the secrets! More than a few useful lessons to be learned.

Inexpensive. Get a copy. 5 1/2 x 8 1/2 paperback 128 pages

No. 4120

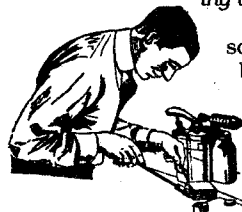
\$7.50

SOLDERING & BRAZING

SOLDERING AND BRAZING

by Raymond Francis Yates
reprinted by Lindsay Publications

"... Includes a Multitude of Soldering Kinks, Gives Design and Construction of Electric Soldering Coppers and Heating Devices. A Practical Hand-book for Everyone Interested in the Process of Soldering and Brazing"



This small book is broken into five parts: soft soldering, hard soldering and brazing, brazing, heating devices, and soldering notes. Within these five sections are numerous topics including electric heater for soldering fluxes, homemade electric soldering copper, method of soldering tin, galvanized iron, zinc, aluminum and lead pipes. You'll learn about blowpipe silver soldering, brazing

spelter and much more. This book talks about old ways of joining metal but not about safety. You have to add that.

This is one of those neat little books from the 20's that are fun to have and read even if they are a little dated! Get a copy. You'll like it. 5 1/2 x 8 1/2 paperback 90 pages

No. 20978

\$6.95

What Metal is All About!

ELEMENTARY METALLURGY AND METALLOGRAPHY

by A. M. Shrager

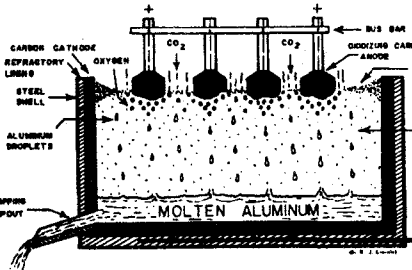
You may be a real hot-shot with a lathe or arc welder, but do you really know how steel is made? Or what hardening and tempering is all about? Or about corrosion and rust? If you don't, you should have a copy of this book in your library.

You'll learn about Bessemer steel, arc furnaces, working of iron and steel, heat treatment, annealing, surface hardening, alloy steels, corrosion, copper aluminum and magnesium alloys, zinc, control, testing, foundry practice and much, much more. You'll find this book is loaded with basic information that you can use. Loaded with illustrations. No math. Complete with appendix and glossary. You can't afford not to have a copy (certainly not at this price!!)

5 1/2 x 8 1/2 paperback 406 pages

No. 54

\$8.95



Melt Iron in a Cupola!

MELTING IRON IN THE CUPOLA

by J. E. Hurst

reprinted by Lindsay Publications

A cupola is little more than a tall, fire brick cylinder with forced air jets called tuyeres near the bottom. Backyard cupolas are miniature versions of larger industrial furnaces described in detail in this excellent 1929 book.

Chapters include: historical, construction, operation, charging, receivers, combustion, tuyeres, special, blowers, linings, and briquets. You get practical information. In the operation chapter, for instance, topics include smooth operation important, preparation of the cupola, chipping out, daubing, making up the bottom, the tap hole, the fettling breast and slag hole, the tapping spout, charging the cupola, the bed coke, and much more.

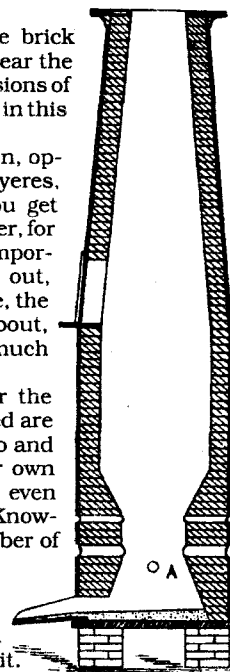
A lot of this equipment is too large for the hobbyist, although the 10" cupolas described are useable. You should be able to take this info and scale it down to, say, a 6" furnace of your own design. Or you can use this info to fire or even modify a small furnace perfected by others. Knowing how the pros did it can reduce the number of mistakes you'll have to make.

This won't show you how to build the cupola step-by-step but it will open your eyes to what they are and how they work. Excellent book. Get a copy. I think you'll like it.

5 1/2 x 8 1/2 paperback 220 pages

No. 21028

\$9.95



INDUCTION HEATING

HIGH FREQUENCY INDUCTION HEATING

by Frank W. Curtis

Wrap a coil of wire around a chunk of metal and feed the coil with high frequency, high power AC current, and before long, the metal will be red hot and then molten.

This technique is not a simple one, and is generally not something done in a home shop. And this is NOT a how-to book. But so many people have asked about induction heating, that I knew this book should be reprinted.

This 1944 book covers principles of induction heating, types of equipment, design of heating coils, brazing and soldering, hardening and heat-treating, fixtures for induction heating, miscellaneous applications, designing for induction heating, and dielectric heating.

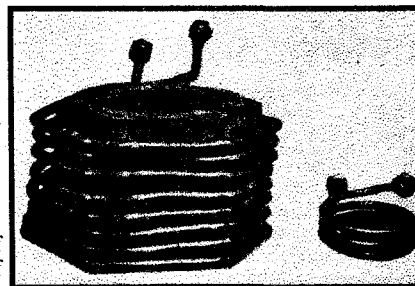
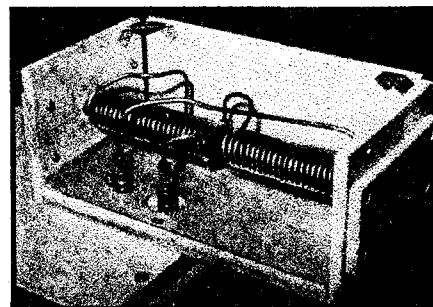
An ingenious experimenter may be able to take the information and perfect a small unit for home use. Several schematics for the generators are shown including a simple spark-gap unit and a simple vacuum tube design.

Truly a top-rate book on an unusual topic. If you've ever wondered about induction heating, you'll like this. Well illustrated. Easy to read. Very informative. Order a copy.

5 1/2 x 8 1/2 paperback 235 pages

No. 4716

\$8.95



MACHINE FORGING

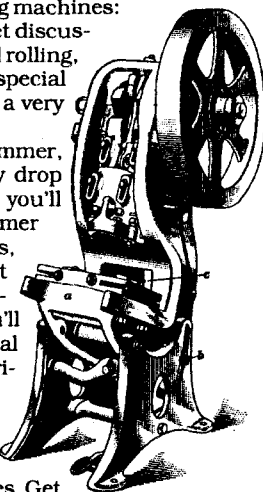
MACHINE FORGING

reprinted by Lindsay Publications

Learn about the three classes of forging machines: rolls, drop hammers, and presses. You get discussions of rolling bars, rolling plates, graded rolling, rolling with dies, rolling rifle barrels, special graded rolling, screw-thread rolling, and a very brief description of bending rolls.

You'll read about a board drop hammer, crank drop hammer, a strap and pulley drop press, and a steam drop hammer. Next, you'll find a number of sections on drop hammer dies, their materials, fastenings, forms, and examples of their work. You'll even get valuable information on providing an adequate foundation for such a hammer. You'll see lever shears, a vertical shear, a vertical punch press, an inclined press, and a horizontal "bulldozer."

Excellent illustrations and easy-to-read text from 1906. Low price. Valuable reading for the blacksmith who is looking to power tools to expand his capabilities. Get a copy. 5 1/2 x 8 1/2 booklet 34 pages No. 20781



\$3.50

Examples of Machine Shop Practice

Machinery's Reference Series No. 10

EXAMPLES OF MACHINE SHOP PRACTICE

by H. P. Fairfield

reprinted by Lindsay Publications

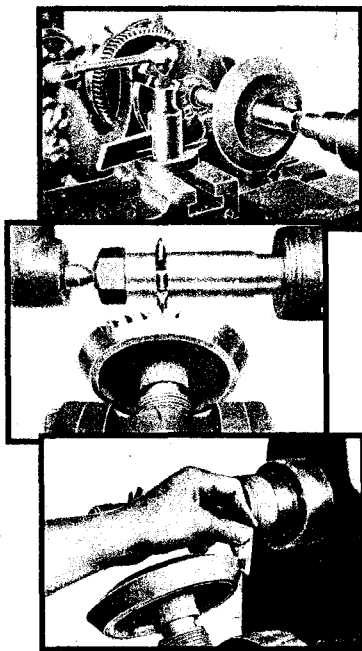
Let a turn-of-the-century machinist show you how to make bevel gears, worm-gears, and a spindle!

You'll turn a bevel gear blank, learn which rotary cutter to use, how to set the depth, make trial cuts, and finish the gear.

In the second part you start with a blueprint, create the wooden pattern and ram up the sand mold. Then you'll true up the casting, bore it, ream it, machine the recess and the circumference, and more to turn out a beautiful worm gear.

The last section will teach you how to make a spindle. A spindle is a shaft used in a boring mill, drill press, milling machine, lathe, etc, and usually has a threaded nose, and tapered hole to hold a collet, an arbor, or a pointed center. For instance, the headstock and tailstock on Gingery's homebuilt lathe is bored to accept No. 1 Morse taper. You'll learn about spindle drilling, boring, reaming, and finishing the spindle.

This is a small, jam-packed booklet. Lots of useful info even for the home machinist. If you've built the Gingery machine shop and are wondering what to do with it, try cutting a worm gear. Great reading. Inexpensive. Get a copy and get started. 5 1/2 x 8 1/2 booklet 48 pages Cat. no. 21400



\$3.95

HEAT TREATMENT

TREATMENT OF LOW-CARBON STEEL

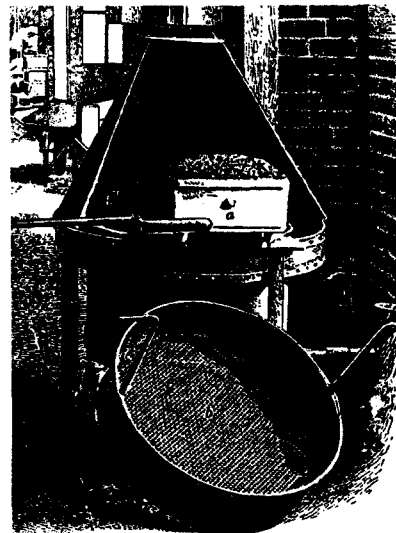
reprinted by Lindsay Publications

You'll learn about the properties of low-carbon steel, see how it is made in Bessemer and open-hearth furnaces, the defects that can occur in ingots, how thermit is used to prevent "piping", what nickel steel is, and more. You'll learn about annealing low-carbon steel in a variety of furnaces and the effect of oil-tempering.

You'll find many sections on case-hardening: theory, packing materials, cyanide hardening to resist wear, hardening tools with potassium cyanide, and the case-hardening of small and large work. Discussed are soft spots, hard spots, use of old bone, packing to obtain colors, cooling work to obtain colors, producing temper colors on case-hardened work, and case-hardening equipment including boxes, cooling baths, and a variety of furnaces. One last section briefly discusses bluing steel.

Great reading for blacksmiths and machinists. Excellent illustrations and easy-to-read text from 1906. Low price! Get a copy. 5 1/2 x 8 1/2 booklet 37 pages No. 20749

\$3.95

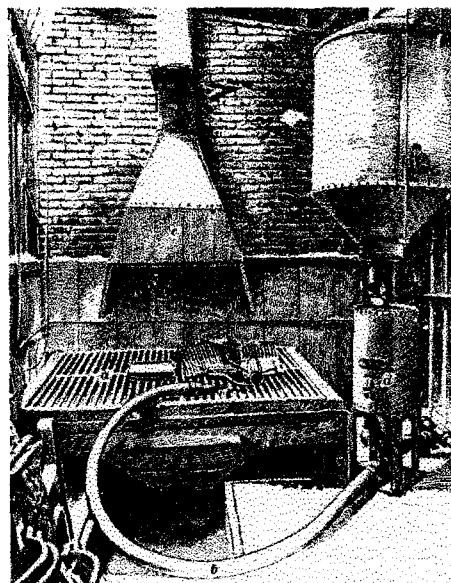


FOUNDRY APPLIANCES

FOUNDRY APPLIANCES

reprinted by Lindsay Publications

See and read about flasks, large and small, flask pins, cross-bars, small iron flasks, snap flasks, nests of flasks, and more. Learn how



core-rooms were arranged, and the equipment used to produce cores: benches, box vise, racks, plates, and ovens - even a core-making machine. Learn about core-rod straighteners, wire-cutters, and rosin grinders.

Learn about the machines used to clean castings: chipping hammers, emery grinders, steel brushes, gate saws, tumbling barrels, pickling solutions, sand blasting and cinder mills.

Visit to an old-time foundry. You can borrow ideas from industrial equipment of

1903, both large and small, and use it in your own backyard foundry. Excellent illustrations and easy-to-read text. Low price! Get a copy. 5 1/2 x 8 1/2 booklet 46 pages No. 20757

\$4.00

Brass Hints & Tips

BRASS HINTS & TIPS

reprinted by Lindsay Publications

From issues of American Machinist Magazine published in 1880's and 1890's comes this collection of short articles on the casting and machining of brass.

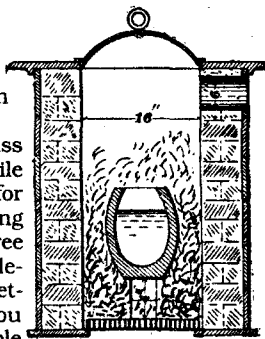
Articles include tools for working brass such as jigs for holding brass bearings while facing off in a milling machine, a jig for winding brass springs, internal threading tools for making nuts, and more. Three different articles will show you how to design and build furnaces to melt brass. Letters from readers of that era will give you tips on furnace modification and crucible care, and how to clean brass, remove sand scale, make special cores and so on.

These old-timers will show you how they poured their own brass castings and turned their own bearings. You get many unusual century-old illustrations. Excellent. Order a copy!

5 1/2 x 8 1/2 booklet 16 pages

No. 849

\$3.00

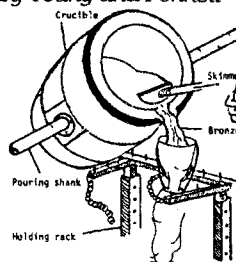


CAST SCULPTURE!

Bronze, lost-wax, furnaces, burners and much more!

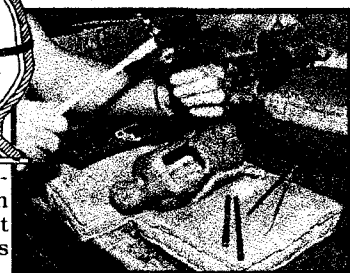
METHODS FOR MODERN SCULPTORS

by Young and Fennell



Sculptors will find this valuable, but the lost-wax casting information is great! Includes: waxes and sprues, mold making, ceramic shell casting, dewaxing, the melt and the pour, chasing and cleaning, polishing and patination, patinas for metal, plus lists of suppliers, books and more.

Very little is left to the imagination. You get plans for furnaces, valves, burners, techniques for spruing, venting, and all the rest. You get many, many formulas for patination (coloring) of the final casting. Sculptors work in bronze (close relative of brass) but there is mention of other metals too.



Well done book. If you're into lost wax, get this. If you're interested in general foundry, consider it. It covers much of the same material as other books, but every book is a little different. Worth having. 5 1/2 x 8 1/2 paperback. 294 pages.

No. 1257

\$16.95

Fire-Arms Mfg 1880

FIRE-ARMS MANUFACTURE 1880

U.S. Dept Interior, Census Office

reprinted by Lindsay Publications

When you mention mass production, most people probably think of Henry Ford and the Model-T. Mass production in U.S. actually began almost a century before with the manufacture of rifles, muskets and pistols. You get an illustrated history of the mass production of fire-arms from 1814 when Col. North started producing interchangeable pistol locks at Middletown, CT to the "recent" improvements of 1880.

Whether you are interested in firearms or not is irrelevant. What counts here is the development of machine tools to mass produce uniform, interchangeable parts. This is where milling machines, profiling machines, turret lathes, gang drilling machines and the like were designed and perfected. You'll find it easy to imagine that you're actually running the Harper's Ferry armory, the Springfield armory, or Colt's factory because you get the details on how many parts a particular machine could produce in a day's time, and how many machines one many could run, and so on.

You learn how a 9" billet was bored and then forged into a rifle barrel. You learn about different

methods of rifling the barrel. You can image the proving shed where the new barrel was overcharged with powder and tested to see if it would explode. You'll find that cast steel was a rare and novel metal when arms manufacture began, but you'll see it was commonly used by 1880. You'll meet the men whose genius created gun stock duplicating machines. Learn about the details of polishing and finishing. You even

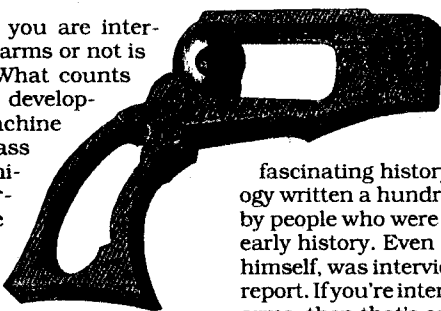
get a brief report on ammunition manufacture.

This is a fascinating history of technology written a hundred years ago by people who were a part of the early history. Even Eli Whitney, himself, was interviewed for this report. If you're interested in fire-arms, then that's one more reason to pick up a copy of this. But any machinist should find this interesting. It's one thing to be able to use a milling machine or turret lathe. But knowing who developed it, when and how and make metal working even more fun.

Interesting book. Low cost. Unusual interesting reading. Great wood cuts. Consider this carefully. 5 1/2 x 8 1/2 paperback 80 pages

No. 20846

\$6.95



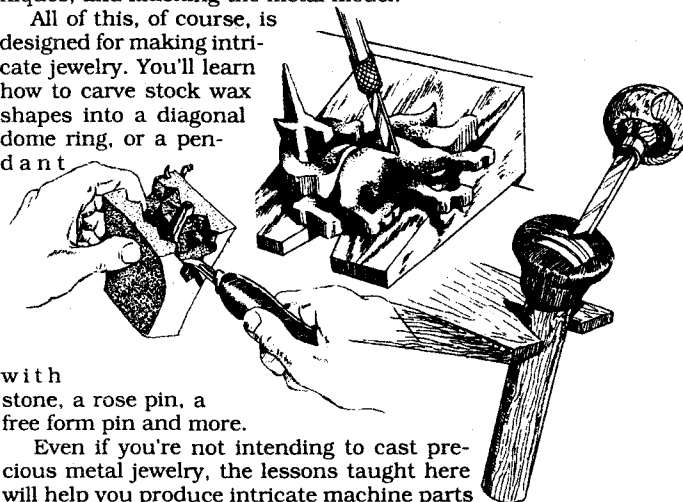
MODELING IN WAX

MODELING IN WAX FOR JEWELRY & SCULPTURE

by Lawrence Kallenberg

Lost wax casting is a powerful technique for producing precision metal castings. The author draws on twenty years of experience to explain the process of lost-wax casting, equipment, wax models from molds, carving blue and purple wax, carving green wax, wax build-up, sheet and rod wax, accidental effects, specialized wax techniques, and finishing the metal model.

All of this, of course, is designed for making intricate jewelry. You'll learn how to carve stock wax shapes into a diagonal dome ring, or a pendant



with stone, a rose pin, a free form pin and more.

Even if you're not intending to cast precious metal jewelry, the lessons taught here will help you produce intricate machine parts and works of art. It's a well illustrated book, nicely written, and although it's a bit expensive, it delivers rare information. This is an essential book for the lost-wax craftsman. Consider it carefully.

7x10 hardcover 252 pages

No. 1290

\$29.95

Build a Carbon Arc Torch!

HOW TO BUILD A CARBON ARC TORCH
by Don A. Meador

Pump a large electrical current between a slightly separated pair of carbon electrodes and you come up a 9000° F flame useful for melting metal, welding and brazing. Here Meador will show you how to build a carbon arc torch using wood, tubing and commonly available carbon electrodes. You really don't need much money or expertise to build an excellent working torch.

hole attaches the clamp ring to the threaded rod, and the other one holds a thumb screw. The clamp leaf floats freely inside the clamp ring. The thumb screw will tighten onto the clamp leaf forcing it against one side of the carbon rod. This causes the carbon rod to be pinched between the clamp leaf and the clamp ring holding the carbon rod securely in place and making a good electrical connection.

The clamp ring is made first. Cut two pieces of 3/4" square steel tubing 1/2 inch long and clean off the burrs with a file. Drill two 13/64 inch holes into the center of two adjacent sides of each clamp ring as shown in Figure 10, and tap these holes for 1/4" - 20 threads. This completes the clamp ring fabrication.

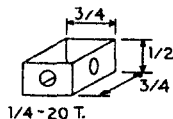


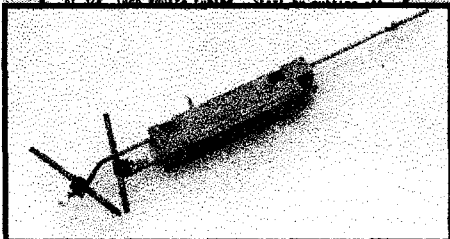
Figure 10

The two clamp leaves are a little more complicated to make. Figure 11 shows how the two clamp leaves look after they have been cut out.



Figure 11

Both clamp leaves are made from one section of 3/4 inch square tubing. Start by cutting off



You do need a source of high-amperage current such as an arc welder, but perhaps you could jury-rig another source such as a bank of auto batteries. (This could be dangerous, so be careful. You're on your own.) The maximum recommended amperage for a 3/16" electrode is 30 amps which is not much. On the other hand, 1/2" electrodes need up to 140 amps. But, then, what are you planning to do anyway? Braze two battle-ships together?

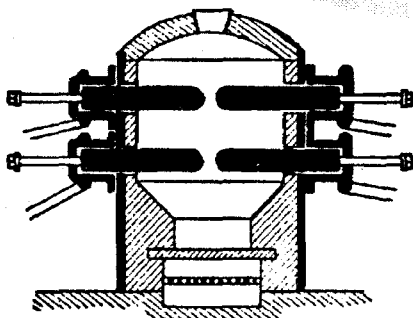
It's a nice little, inexpensive torch that you can assemble in a snap. Don's booklet is self-published, and it looks pretty good with photos and drawings. It's not a slick profession publication, but it does deliver. And the price is reasonable.

So build a torch. Use it to light up your movie lot, fry fish, or cauterize herpes lesions (although I don't think I want to be around to smell that!). You might even try using the torch to heat metal! Order a copy. 5 1/2 x 8 1/2 booklet 30 pages

No. 1349

\$6.95

ELECTRIC ARC FURNACES



ELECTRIC ARC FURNACES

reprinted by Lindsay Publications

Two short but excellent articles from turn-of-the century mechanics magazines will show how to build an arc furnace with clay flower pots and carbon arc rods. Although they claim it is useful for melting aluminum,

brass, and the like, I know there are some people using similar small furnaces to melt steel!

You run every risk in the book with these furnaces: fire, electrocution, poisonous gases, etc., but they can perform.

You get many pages of reprints detailing the history and variety of electric furnaces showing their electrode arrangements and how they came to be. You also get a reprint on the Stassano furnace which is a large commercial furnace similar to the two amateur furnaces described.

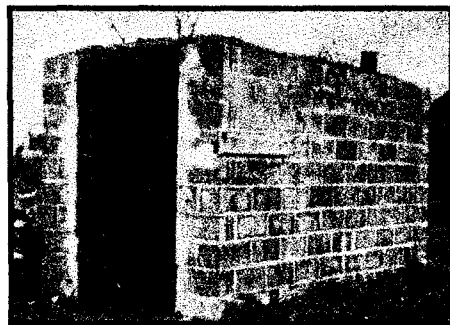
Fascinating reading. You'll have to make adaptations and be very safety conscious if you intend to build, but it sounds promising. 5 1/2 x 8 1/2 booklet 15 pages illustrated No. 854 \$2.00

A CHARCOAL KILN MADE OF CINDER-CONCRETE BLOCKS

by A. Richard Olson and Henry W. Hicock
reprinted by Lindsay Publications Inc

You can melt metal with natural gas, and it's obviously far more convenient, but charcoal is the traditional fuel. And you can make your own!

You get a booklet published in February 1946 by the Connecticut Agricultural Experiment Station. These kilns were devised to turn wood into charcoal to supply the ten to twenty thousand tons of charcoal needed by Connecticut farmers back then to cure their tobacco. You can use it to produce fuel for a cupola or other foundry furnace or perhaps even a smelter!



Charcoal Kiln

You get complete plans and details for both a one- and two-cord kiln. A standard cord of wood is 4'x4'x8'. So you know these babies are big units, at least for the backyard foundryman. You get details on materials, the site, foundation, building the coaling chamber, building the top, and building the chimney stove. Then you learn about loading the kiln, firing, coaling, closing and cooling, and finally opening. You get tables showing typical firing times for coaling oak, maple, birch, and other dense woods.

Great booklet! Dirt cheap! Provides great information. Get a copy for your library today! 5 1/2 x 8 1/2 booklet 30 pages

No. 21060

\$3.95

Make Charcoal and Coke!

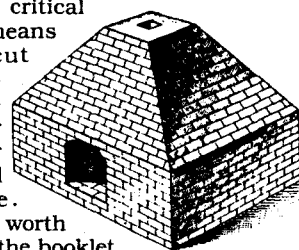
MAKING CHARCOAL AND COKE

You can easily turn wood into charcoal to fire the charcoal foundry, melt cast iron, or even refine iron ore like they did a century ago.

The first part of this booklet tells you the basics involved in building a charcoal retort, a very simple device that will turn wood to charcoal very efficiently. You'll be shown the important principles and how to operate the retort. You won't get nut-and-bolt instructions, because you'll probably have better ideas of your own depending on what kind of materials you can scavenge. The design is not critical

and that means you can cut costs by using old barrels or drums, or even an old woodstove.

This info is worth the price of the booklet alone.



Next, you get reprints from an 1895 encyclopedia detailing the process of making charcoal and coke. You'll learn which woods (and even sugar) produce what types of charcoal.

Pages from another book, published about 1905, will show you how coal was originally "coaked" in large piles much like charcoal, and later in bee-hive kilns. Detailed cross sections, operating diagrams, and test results will give you valuable information should you choose to develop your own coking process.

Valuable information at a low price. A must for foundrymen. Interesting reading. 5 1/2 x 8 1/2 booklet 23 pages.

No. 858

\$3.00

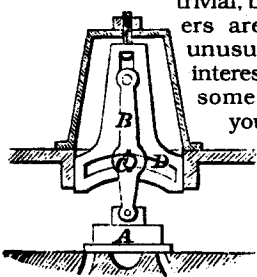
507 MOVEMENTS!

507 MECHANICAL MOVEMENTS

by Henry T. Brown
reprinted by Lindsay Publications

Originally copyrighted in 1868, this 1893 printing carries a complete title of "Five hundred and seven mechanical movements embracing all those which are most important in dynamics, hydraulics, hydrostatics, pneumatics, steam engines, mill and other gearing, presses, horology, and miscellaneous machinery; and including many movements never before published and several which have only recently come into use."

You'll find each left-hand page carries nine illustrations, and each right-hand page presents brief descriptions of their operation. Some of the movements are



trivial, but others are quite unusual and interesting. In some cases you'll find that these movements were popular at

one time, but are no longer used. Discover Fairbairns' bailing-scoop, Anderson's gyroscopic steam engine governor, or Clayton's sliding journal-box.

If you design machines, this can be very useful to you as practical how-to info. Design and build table-top demonstrations of these movements. Great project ideas! At the very least you'll find this a great book to browse through on a rainy afternoon. Very interesting. 6x7 paperback 128 pages

No. 4252

\$7.95

MACHINE SHOP VIDEO

GREEN SAND CASTING TECHNIQUES

by Dave Gingery
and Robert Bailey

The "Missouri Madmen" teamed up to produce a fascinating video to show you how to ram up a green sand mold. You can do it without this video just as I did by reading Dave's classic "Charcoal Foundry". But! When I watched this video, I found out why my castings were only passable, and why his were expertly done! He shows you how to get a first rate casting. I've poured a good many castings, and yet, I learned much from the master.

You get a review of the tools that can be purchased from the hardware store and made from scrap materials. You'll see Dave mold a two part flywheel pattern in bonded silica sand. You'll watch Dave ram up the sand, swab it, rap the pattern, pull it, and repair the damage.

With the pattern removed and the mold reassembled, you'll watch Dave fire up the gas-fired crucible furnace. Watch the flames jump from the vent hole!

When the aluminum is molten, you can watch Dave pull the cherry red crucible and pour the mold. A little later, you'll see Dave shake out the mold to reveal a beautiful flywheel casting ready for machining.

As a bonus, you will see what you can make from aluminum castings. See Dave's homemade lathe in action. Watch Dave's shaper smoothly cut flats on a shaft! See a fly cutter on his milling machine surface an angle plate. And you'll see that his drill press is a monster! You'll see Dave's sheet metal brake, too. You'll see Dave's two cylinder Stirling engine running while the match plate patterns used to make it sit in the background. You'll see individual patterns and the castings they produced - even as thin as 1/8" inch! Even the Rider-Erickson hot air engine is shown running.

What you get here is a how-to on making sand molds. But you're also taken into Dave's garage/workshop and shown the marvels (described in his books) he has built. You'll come away from this video fired up to fire up the fire on the furnace. So get hot! Snap up a copy of this VHS video. I guess it's about an hour in length (I was too busy winding and rewinding to get an exact measurement).

No. 1320

\$29.95



GREEN SAND CASTING TECHNIQUES VOLUME II

with John Dilsaver

Let John Dilsaver (who got his start with Gingery's "Charcoal Foundry") show you three advanced molding techniques for the Rider-Erickson hot air engine using Dave Gingery's patterns. You'll see the casting of the yoke which uses a follower because of its irregular parting line. It's an ingenious solution to a difficult molding problem.

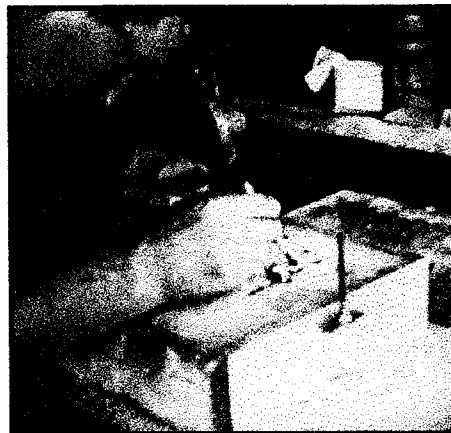
Second, you'll see how the engine cylinder is cast with a hollow interior using a green sand core rather than the usual baked sand core. The secret to this fascinating and time saving technique is the use of a perforated pipe to support the green sand. John makes it look so easy.

And, finally, you'll see a number of small engine parts cast in brass using the match plate technique. As it is poured you'll easily see how much hotter brass is compared to molten aluminum. You can almost imagine how much hotter still molten iron would be. You'll hear these people who have poured brass and iron recommend that you start by casting aluminum before moving to the "hot" stuff.

Excellent content is the same high quality as the first. Good quality video. VHS cassette about 40 minutes in length

No. 1326

\$29.95



BASIC LATHE OPERATION (AND MORE)

with Steve Chellis
produced by Bob Bailey

Let Steve Chellis show you the basics of lathe work in this surprisingly good video. Chellis has been a journeyman machinist

and a good lathe book (plenty of them in this catalog) will get you going in the machining hobby. Consider this carefully. 61 minutes video VHS format (NTSC - will not play on PAL or SECAM systems)
No. 1350 \$32.95



BASIC MILLING MACHINE OPERATION

with Steve Chellis
produced by Bob Bailey

This video opens with a Stirling engine rattling off the revolutions, but quickly shifts into milling machines, their tools and the necessary set ups to get precision results.

Steve will show you his tools including end mills, collets, drills, tap starters, edge finders, wigglers (center finders), a boring head, a home made fly cutter, a Jacobs chuck, carbide in-

Let Dave Gingery and John Dilsaver show you how to make a green-sand mold!

See Gingery's furnaces and machine tools in action!

Let Steve Chellis show you the basics of running a lathe and a milling machine!

home lessons that could be tough to understand when seen in print.

An interesting tape. Great basic material. Something worth considering. Videos aren't cheap, but consider how many expensive castings you could ruin before you learned some of the basic lesson taught here. A video isn't so expensive when you think of it that way. Think about ordering one. VHS video about 1 hour
No. 1351 \$32.95

for more than 40 years, and for the last 15 years has operated Chellis Machine and Tool. He has trained a number of apprentices. Through this video you can be his latest.

You'll start out by examining the tools you'll need to layout work and cut threads. You'll take a close look at thread gauges, measuring wires, dial micrometers, center gauges, a surface plate, surface gauges, dial mikes, and more.

At the grinding wheel he'll show you how he cuts a lathe tool from a high-speed steel blank. Then you'll learn how to cut threads in the lathe, measuring as you go to ensure accurate, high quality work.

You'll watch Chellis mark out a steam engine eccentric which must be part of the 4" scale traction engine he is building. The eccentric is chucked in the lathe, the shoulders are turned down. After rechucking the eccentric, the casting is drilled and bored. You'll watch each step, and he'll talk to you, giving you hints and tips, as he makes the cuts.

You'll see a set up he devised to bore what looks to be the crosshead for his engine. The homemade boring bar was made from a 1 1/2" diameter hunk of cold rolled steel. You'll watch it zip through the casting.

You'll see other things, too. Watch him cut threads on the engine steam chest after getting the casting accurately positioned in the four-jaw chuck. You'll find useful ways to use a dial micrometer and center-finding wiggler. You'll get tips on using a steady rest as you watch him clean up a shaft and drill a new center hole.

The video quality is surprisingly good. The producer/publisher, Bob Bailey, has done an excellent job producing these tapes for such a specialized market. If you're expecting some bimbo to appear in leotards and do aerobics, fergit this. But if you want to watch metal chips fly, order a copy. This

sert miller cutters, taps and lots more.

Then he'll take you over to his vertical mill and show you all the controls from vertical quill feeds to table controls. He'll briefly mention what to avoid if you intend to buy a used milling machine.

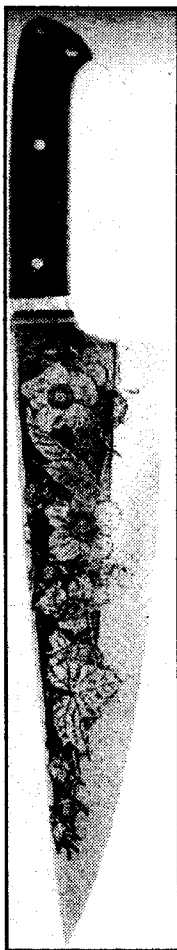
First off, you'll square up a one inch thick aluminum plate. Steve will show you how to clamp it to the milling machine table and use a dial indicator to true it up. You'll see how useful homemade stop blocks can be in setting up the work. You'll drill a hole, and then bore it out without removing the plate from the table.

You'll see how to use a rotary table, how to set the head an angle and then true it up again, how to use a sine plate to measure angles, set up work on a sine plate, and more. You'll learn how to use a vice on the table, square it up with the dial indicator, use a variety of homemade jigs and fixtures to mount the work.

And finally, Steve will show you how an indexing head and a rotary cutter are used to cut gears.

Admittedly, a great deal of material is covered in a single hour. But this tape when used with a good machine shop book or two (and I'd be tickled to sell 'em to ya), will drive





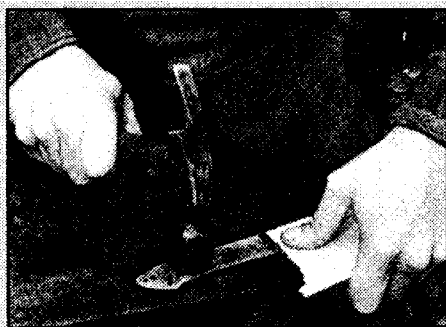
KNIFEMAKING

STEP-BY-STEP KNIFEMAKING

by David Boye

Here's another lost art! Learn about the tools you'll need - torches, grinders and sanders. Learn about the many types of knives, about cutting, grinding, and heat treating the blades. Learn how to make handles, sharpen, make sheaths, and acid etch intricate decorative designs into the steel. These knives are works of art that are almost too beautiful to use. You have to see this book to believe what is possible.

This is a classic text first published in 1977 and reprinted many times. It's loaded with detailed information on what is essentially an art form. You'll really like it. A goodie. Grab a copy! 7 1/2 x 9 paperback 270 pages heavily illustrated No. 115 \$14.95



The Art of Engraving!

THE ART OF ENGRAVING

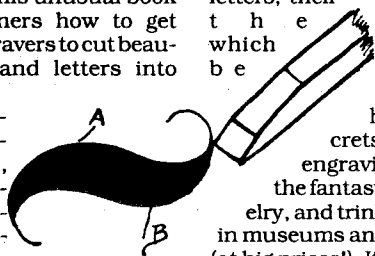
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Lindsay Publications

Originally copyrighted in 1903 by the owner of *The Keystone*, a magazine published for the jewelry and optical trade in Philadelphia, this unusual book teaches beginners how to get started using gravers to cut beautiful designs and letters into metal.

Chapters include mechanical drawing, tools and materials for beginners, first exercises, block letters, methods of cutting block letters, script letters, cutting lower-case script letters, the formation of script capitals, looped script, practical use of script letters, engraving coffin plates, engraving thimbles and inside of rings, engraving inscriptions in script, method of cutting Old English, shaded Old English, engraving spoon handles, designing and engraving ciphers, flower leaf ciphers and more!

You'll learn about gravers and their care, engraving tables, engraving script in metal, ivory, and even pearl. The illustrations you find are mostly concerning letters, their style and the method in which they should be cut. What you learn here are the secrets that went into engraving so many of the fantastic trophies, jewelry, and trinkets that we find in museums and antique stores (at big prices!). It was all done by hand.

This is a technique that many people are still trying to learn. It is definitely an art, a skill, and not a machine shop technique. If you're into making knives, guns, spinning metal, creating jewelry or any type of decorative art, this is a rare book worth having. Get yourself a copy and put it in your reference library today! 5 1/2 x 8 1/2 paperback 199 pages No. 20617 \$10.95



ENGRAVE!

THE JEWELRY ENGRAVERS MANUAL

R. Allen Hardy & John J Bowman

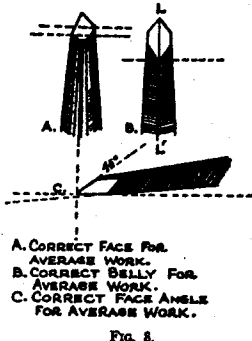
From the back cover:

"Many engraving books on the market illustrate the forms and appearance of finished designs but fail to



provide adequate instructions for actual engraving. In sharp contrast, this comprehensive and practical manual by two educators and master craftsmen teaches every step of the engraving process.

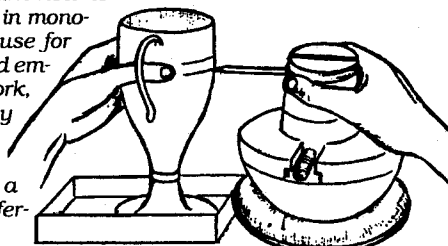
Clear, step-by-step instructions, accompanied by scores of illustrations, tell how to cut initials and inscriptions



using a variety of alphabets, including script, ribbon, vertical script and Roman letters, as well as block and Old English. You'll also learn how to design and cut initials in monograms, what forms to use for properly decorating and embellishing engraved work, and how to correctly shape and maintain tools, particularly square script gravers - a tool basic to many different kind of engraving.

While practicing artisans will find here many useful suggestions for improving their professional work, beginners will especially find *The Jewelry Engravers Manual* invaluable for mastering the art of engraving...

Although you get a book that will teach you to cut letters, the skills you acquire will allow you to do much more. This is a well illustrated how-to at a very reasonable price. If you ever intend to engrave, I think you'd be foolish not to have this book. It's good. A reprint of the 1976 original. Get a copy. 5 1/2 x 8 1/2 paperback 160 pages 89 illustrations No. 1352 \$5.95



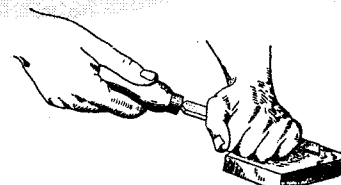
Secrets of Hand Scraping

OLD TIME MECHANICS

reprinted by
Lindsay Publications

Back in the 1700's when you opened a machine shop, you didn't run out and buy a lathe and planer, you built them! Scraping was the skill necessary to produce absolutely flat and true beds and tightly fitting bearings. It was a skill that every mechanic learned, yet today few people have even heard of it.

Scraping is used on the machines described in the *Gingery* series of books. Scraping is also the secret method used by Whitworth to produce large surface plates accurate to millionths of inch two centuries ago! It is a very valuable skill. The first half



of this booklet deals with the surface plate and scraping.

Also reprinted are instructions for lapping, grinding valves and joints, making shrink fits and force fits, and for balancing pulleys, cutter-heads, and emery-wheels.

Get a copy! Learn about these old-time skills. This information is fast becoming lost technology. 5 1/2 x 8 1/2 booklet 15 pages No. 855 \$2.75

PLATERS' GUIDEBOOK 1936

by Chamberlain & Hogaboom

published by METAL INDUSTRY & ELECTROPLATERS' REVIEW

reprinted by Lindsay Publications

This small industrial handbook tried to help the professional to survive the Great Depression and provide quality to his customers.

You get are 68 core pages of how-to information surrounded by advertising aimed at the plating trade. Contents include: polishing, buffing and coloring; abrasive rolling and ball burnishing; solvent and vapor degreasing; metal cleaning; solutions for plating; tanks; stripping solutions; metal coloring; saw dust tumbling; specifications for plated coatings; electrolytic deposit tables; replenishing the metal content of cyanide baths; methods of analysis of plating solutions; and a list of chemicals and their equivalent names.

You get lists of abrasives commonly used on different metals, how to clean metals electrolytically, with alkali, and how to pickle. You get plating bath formulas for brass, bronze, cadmium, copper, chrome, nickel, gold, silver and more. Some of these formulas were at the time protected by patents. You get formulas for baths that will color metals, for instance, turn brass blue-black. You get in-

PLATERS' GUIDEBOOK

1936 How-To for Professional Platers!

structions on how to anodize aluminum using chromic acid. You get detailed instruction on how to check the health of your plating baths. And there's much more.

Surrounding the how-to pages are ads for buffing wheels, plating barrels, filters, proprietary plating baths, motor-generators, dipping baskets and more. Don't expect these suppliers to still be in business.

This is a great little book with practical info aimed at the professional. The chemicals used here are potentially dangerous. Electroplating is not something you're going to do in a spare bedroom or out of the trunk of your car. Excellent little book! Practical info! Trade "secrets". Get a copy! 5 1/2 x 8 1/2 paperback 128 pages No. 21451 \$7.95

Reetz's "Electroplating"

ELECTROPLATING

by Henry C. Reetz

reprinted by Lindsay Publications Inc

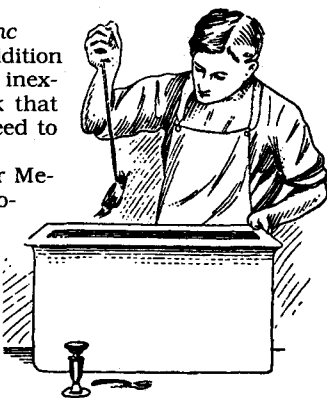
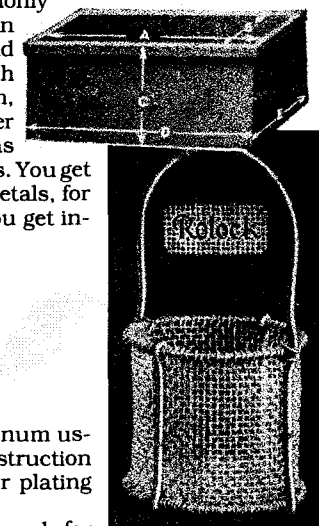
Try electroplating! It's a useful addition to your shop skills. Here's a simple, inexpensive, well-illustrated little book that will show you exactly what you need to know to get started.

Originally published by Popular Mechanics magazine in 1911, Electroplating is brief, easy-to-read, and useful. You can be sure about that. About the only information that is really dated concerns power supplies.

Chapters include introduction, electrical equipment, shop equipment, cleaning goods before plating, copperplating, nickelplating, silverplating, goldplating, miscellaneous, first aid, and business suggestions.

You'll learn how to clean parts, polish them, mix up solutions, make tanks, and all the essentials to get going. This could very well be an easy to way to try plating. If you enjoy it, then you can launch into "heavier" texts loaded with chemistry and industrial secrets.

A great little book. Worth having. Order a copy. 5 1/2 x 8 1/2 paperback 99 pages No. 20080 \$7.95



"Six Hundred Useful Receipts, Compositions and Formulas"

MACHINERY'S SHOP RECEIPTS

reprinted by Lindsay Publications

On the title page you'll see "Six Hundred Useful Receipts, Compositions and Formulas Selected from MACHINERY'S Columns and Republished in a Classified, Pocketsize Edition, in Response to Repeated Requests from Friends Throughout the Mechanical Field"

This is a complete reprint of the first 1927 edition.

What you'll find here is not really a set of formulas but rather a collection of hints and tips that chosen to make a machinist's work easier and better. Most of the advice is still useful, although some of the alloys mentioned and such may be dated.

This is a great little book loaded with interesting and useful data and you'll find useful. Just one idea can be worth the cost of the entire book. (For that matter, just one great idea can be worth more than the cost of all of the books in this catalog!) Check this out. Consider it carefully. Put it on your list of books to order. Better yet, order it today. 4 1/2 x 6 paperback 266 pages No. 20374 \$9.95

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Mechanical Marvels



MAKING MECHANICAL MARVELS IN WOOD

by Raymond Levy

You get plans, instructions and illustrations to build a cam and follower, the eccentric, the Scotch yoke, the fast-return actuator, a self-conjugate cam, a stationary steam engine, a single-part mechanism, couplings, Watt's sun-and-planet motion, the Geneva wheel, and several others.

Each is a hard-wood demonstration of a basic mechanical movement that can be quite a conversation piece. But even if you don't work wood, use

your head. How about making these devices from metal? How about making patterns and selling castings as kits? Or forget the metal, and make 'em out of epoxy and peanut butter. No? Well, you gotta better idea?

Fascinating book for anyone who likes machinery. Great ideas for metal workers. A "must-have" for model makers. Order a copy! 8x10 paperback 192 pages

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If you're returning a book, pack it well. Credit will be issued for the price of the book (and sales tax, if any). We do not issue refunds on shipping and handling charges.

WARNING!

I do not endorse the methods or plans offered here. Some are dangerous, and I cannot be responsible for accidents. I cannot vouch for the accuracy or safety of the methods in these publications. This is a bookstore, not a school. Be very careful. Use good judgement in your work.

PRICES AND AVAILABILITY

Prices and availability are subject to change without notice! Your packing slip will show the current price regardless of what might be in the catalog. Prices often change between the time the catalog goes to press and the time you order. Call if you need to know before ordering.

CATALOGS

Catalogs are issued several times each year. If your catalog is more than year old, write for a current copy before ordering. A new copy will be sent with an order at no charge if so requested.

CUSTOMER SERVICE

Calls concerning problems should be placed during normal business hours. Although they are not required to do so, packing crews working after hours often take phone orders as courtesy to customers. They are not qualified nor authorized to provide customer service. Please call earlier in the day.

GIFT CERTIFICATES

Gift certificates are available in any amount. If you want a new catalog, request one at no charge.

BACKORDERS

Because most backorders are short term, we will charge you for your entire order even though a book may be out of stock. The book will be shipped at no additional charge when it arrives. This policy applies to all forms of payment: check, money orders, COD's and charge cards.

For instance, you order six books, five of which are shipped COD immediately, and one is backordered. Your COD charge is for all six books. The backordered book will be shipped at no additional expense to you as soon as available.

CANADIAN CUSTOMERS — Please remit in Canadian Postal Money Orders in US Dollars, Visa, Mastercard, or check drawn on a US Bank. We can't find a US bank than wants to handle checks from Canadian Banks. It must be a conspiracy!

Phone Your Order In — Call us at 815/935-5353 during normal business hours (nothing is ever normal when you're forced to work with Lindsay!) and we can get your order into the system immediately.

FAX Us Your Order — Fax us all the necessary information at 815/935-5477. On line 24-hours.

COD Orders — COD's are sent UPS at a cost of several dollars more.

NEXT DAY AIR — UPS Next Day is available if necessary. Books are heavy and this service can be quite expensive.

SECOND DAY AIR — UPS Second Day air (2-day delivery) costs less than next day air.

PRIORITY MAIL — First Class Mail (all 1st class mail is airmail) costs several dollars more depending on weight and is supposed to provide 3 day delivery to any zip code. (If you live in the South Pacific, don't hold your breath!)

Regular Shipping — Orders are normally shipped via Book Post (US Postal Service) or via UPS depending on the weight of the package.

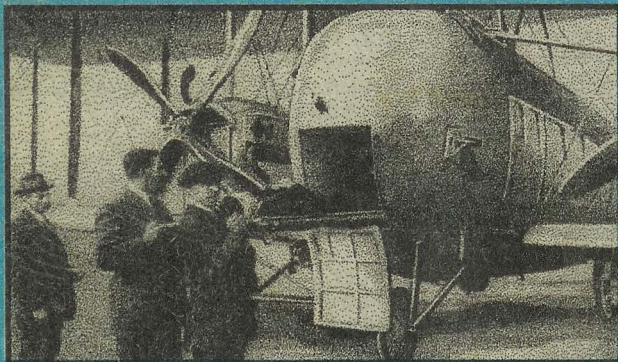
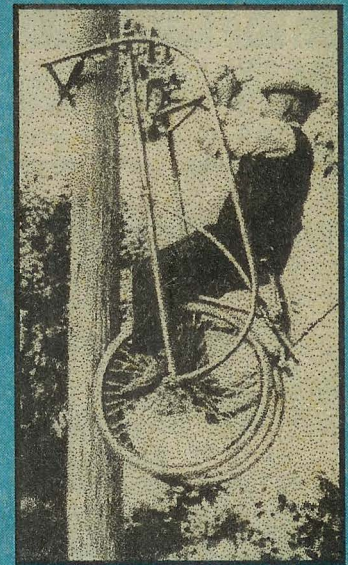
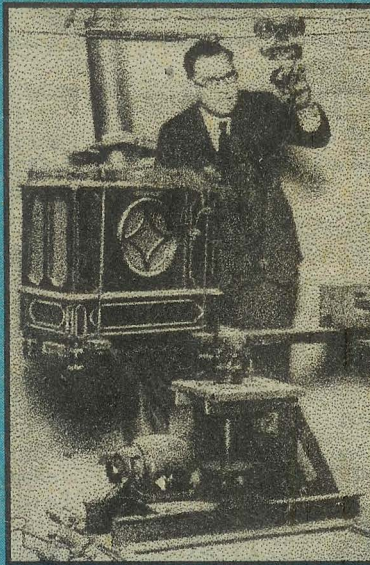
MORE INCREDIBLE ~~INVENTIONS~~ JUNK

being developed in the Lindsay Publications Laboratories

Lindsay has his technicians hard at work perfecting his latest inventions in the Lindsay Labs. (As usual, we think he's out of his mind...)

Almost complete is Lindsay's woodstove catapult. Should the stove overheat and risk setting the room on fire, a fusible link in the catapult will hurl the stove, the fire, and the stovepipe through the nearest window out on the lawn where little harm can be done. (Maybe with luck it will hurl Lindsay out the window along with the stove...)

Lindsay's newest airplane is powered by corpses! The corpses go in the front of the fuselage and are converted to power. Ashes come out the back! Instead of you paying to have your deceased relatives cremated, Lindsay will pick up their bodies, pay you, and use them in his new trans-Atlantic airliner. Lindsay claims the airship is extra safe. Should the plane run dangerously low on fuel, Lindsay claims the flight attendants



can ask for volunteers from the passenger compartment to power the plane. (We have decided never to fly again...)

And we can't overlook Lindsay's new tree climbing bicycle. He plans to sell it to fire departments to help them retrieve stranded cats. Trouble is, the bicycle climbs beautifully, but it doesn't always descend. We've had to call the fire department too many times already to get Lindsay and his stupid bicycle back to earth. (Next time, we'll leave him up there...)

Lindsay is busy with his knucklehead inventions, and the office is quiet. Now is the time for you to send us your order. Please! Before Lindsay gets back...

Lindsay's
Weary
Employees

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